

2017 Georgia **Ag Forecast**

SITUATION AND OUTLOOK REPORTS



College of Agricultural &
Environmental Sciences
UNIVERSITY OF GEORGIA

Introduction

From production to processing, agriculture is the largest industry in Georgia. It supports the state through jobs, provides Georgians with food and fiber and contributes numerous other benefits that stretch far beyond our corner of the country. Agriculture is Georgia, and we at the University of Georgia College of Agricultural and Environmental Sciences are doing everything we can to support both.

The UGA Center for Agribusiness and Economic Development and the college's Department of Agricultural and Applied Economics strive to serve Georgians by providing the most up-to-date and relevant agricultural and economic information. Our faculty work to deliver quality research and analyses so that you can make pertinent decisions that will enhance your agribusiness operation.

Georgia agriculture competes in a global market. Economic conditions here and overseas, as well as politics, can have a significant impact on producers here in Georgia. As we look to 2017, agricultural exports are forecast to decline as a result of lower prices, strong competition and diminishing Chinese demand. The Georgia Ag Forecast will explore the impact of these falling exports on Georgia agriculture.

With this in mind, we present the 10th annual "Georgia Ag Forecast Situation and Outlook Reports." These materials represent the best thinking of economists who work with the various agricultural sectors of our state. Whether you're interested in row crops, livestock, agritourism, honeybees or timber, we've compiled the impacts from 2016 and the potential for 2017. We hope the situations and outlooks addressed in this book will help you make informed business decisions for the upcoming year.

We thank our sponsors, Georgia Farm Bureau and the Georgia Department of Agriculture, for providing the support that allows us to extend research-based information from UGA to our state's citizens. This is our job now, just as it was when UGA and other land-grant universities were founded more than 150 years ago.

We thank you for your participation.

Sam L. Pardue

Dean and Director

University of Georgia College of Agricultural and Environmental Sciences

Kent L. Wolfe

Director

University of Georgia Center for Agribusiness and Economic Development

Octavio A. Ramirez

Department Head

University of Georgia College of Agricultural and Environmental Sciences

Department of Agricultural and Applied Economics

Contents

FINANCIAL OUTLOOK

U.S. and Georgia Economics

By Jeffrey Humphreys 4

U.S. and Georgia Farms

By Brady Brewer 8

CROPS

Peanuts

By Adam Rabinowitz 10

Row Crop Net Returns

By Amanda Smith, Adam Rabinowitz and Don Shurley 12

Cotton

By Don Shurley 14

Fruits and Nuts

By Esendugue Greg Fonsah 16

Vegetables

By Esendugue Greg Fonsah 17

Grains and Soybeans

By Adam Rabinowitz 18

LIVESTOCK

Beef

By Levi Russell 20

Pork

By Levi Russell 22

Poultry

By Levi Russell and John McKissick 24

Dairy

By Tommie Shepherd 26

OTHER INDUSTRIES

Green Industry

By Ben Campbell 28

Agritourism

By Kent Wolfe 30

Honey Bees

By Jennifer Berry 32

Timber

By Will Ficklen, Jack Durgin and Bob Izlar 33

AUTHORS 37

LETTER FROM THE DEAN 38

U.S. and Georgia Economics

By Jeffrey Humphreys

The national outlook

The University of Georgia Terry College of Business' 2017 U.S. economic forecast indicates that the economic recovery that began in the second half of 2009 will be sustained. The rate of 2017 gross domestic product (GDP) growth, 2.5 percent, will be higher than in 2016, 1.7 percent, but below the average of the last 50 years, 2.9 percent. U.S. GDP growth will be higher in 2017 than in 2016 thanks to (1) more spending by U.S. consumers, (2) an upturn in spending by businesses for equipment and structures, (3) an upturn in industrial production, (4) an upturn in inventory accumulation and (5) a smaller drag from net exports.

The U.S. is well positioned for another year of modest economic growth courtesy of extensive restructuring of the private sector, including the cleanup of the financial sector, deleveraging by consumers, low interest rates and a favorable balance of supply and demand for residential and nonresidential properties. Household balance sheets are in very good shape. Corporate balance sheets are not quite as strong but appear to be quite manageable due to low interest rates. State and local governments are positioned to contribute to growth because they have adjusted their spending and staffing to reflect their ability to generate revenue.

With the year-over-year rate of 2017 U.S. GDP growth predicted at a below-average rate, the U.S. economy will be vulnerable to economic shocks and/or policy mistakes. The main risks to U.S. economic growth are (1) financial panics and/or massive shifts in asset prices – one potential trigger would be unexpectedly large increases in interest rates, (2) a sharp slowdown in global economic growth and (3) mistakes in U.S. fiscal or monetary policies. Risks to the outlook have increased. The probability of recession beginning sometime in 2017 is 35 percent, which is higher than the 25 percent recession probability estimated at this time last year. The higher risk of recession in 2017

compared to 2016 mainly reflects concerns about inflated asset prices (such as, bonds and, to a lesser extent, equities). As always, energy prices are a wild card.

In 2017, consumer spending, gross private domestic investment and industrial production will contribute to U.S. GDP growth. Also, the inventory swing will be a slightly positive factor. Spending by government will be a neutral factor in terms of 2017 U.S. GDP growth: Modest contributions by state and local governments to growth will be largely offset by a decreased contribution by the federal government. The Federal Reserve's monetary policy stance will become less stimulative as it slowly raises short-term policy interest rates – the federal funds rate will reach 1.5 percent in December 2017. The inflation-adjusted federal fund rate, therefore, will still be less than zero – less stimulative, but hardly restrictive.

Net exports will subtract from 2017 U.S. GDP growth, but the subtraction will be smaller than in 2016. Subpar productivity growth, albeit slightly higher than in 2016, is another factor that will hold down 2017 GDP and personal income growth. Subpar productivity growth reflects several factors, including low levels of business investment, more regulations at every level of government, challenging demographics and mediocre gains in educational achievement. Also, the new Fair Labor Standards Act regulations will lower productivity significantly.

The Georgia outlook

In 2017, Georgia's economy will continue to expand. The pace of GDP and personal income growth will accelerate, but the pace of job growth will slow. Because Georgia's economy is inextricably linked to the national economy, the risk of another recession is 35 percent, up from only 25 percent in 2015-2016.

The 2017 forecast calls for Georgia's

inflation-adjusted GDP to increase by 3.2 percent, which is higher than the 2.6 percent growth estimated for 2016. Georgia's 2017 GDP growth rate will be 0.7 percentage points higher than the 2.5 percent rate estimated for U.S. GDP. It will also be above the long-term average rate of U.S. GDP growth, 2.9 percent. The positive differentials reflect (1) many major projects already in Georgia's economic development pipeline, (2) more leverage from the housing recovery, (3) more supportive demographic forces, (4) continuing expansion of Georgia's manufacturing industries even as U.S. manufacturing experiences a mild recession and (5) more small business startups and expansions.

The state's nominal personal income will grow by 5 percent in 2017, which is higher than the 4.1 percent gain estimated for 2016. It also exceeds the 3.1 percent gain expected for U.S. personal income. Georgia's nonfarm employment will rise by 2.1 percent in 2017, which exceeds the 1.5 percent gain estimated for the U.S. It's smaller, however, than the 2.8 percent, 2.9 percent and 2.7 percent job gains Georgia posted for 2014, 2015 and 2016, respectively.

Georgia's unemployment rate for 2017 will average 4.8 percent, or about 0.5 percentage points lower than the 5.3 percent rate estimated for 2016. The unemployment rate will come down less in 2017 than in recent years because of the slowdown in job growth as well as small increases in labor force participation.

Job growth will be very well balanced in 2017, with gains in both goods-producing and service-providing industries. The fastest job growth will occur in construction, followed by professional and business services, and leisure and hospitality. Solid, but below-average job growth is expected for education and health services, trade, transportation and utilities, financial activities, manufacturing and other services. Positive, but very slow job growth is

projected for government and information. Local government rather than federal or state government will account for most of the increase in government employment.

Service-producing businesses led the upturn in Georgia's economy that began in early 2010, but some major service industry subsectors – financial activities and information – initially did not participate and continued to cut jobs. The 2017 forecast indicates that all Georgia's major categories of service-related businesses will expand, with the broader base of growth reflecting the upturn in housing markets, growing demand for information and high technology services, and competitive economic development incentives.

In 2017, headquarters jobs will be an important force powering Georgia's economic growth. Hartsfield-Jackson Atlanta International Airport and Georgia's ideal geographic location makes the state a good hub from which to serve operations in the Americas. Access to talent and the strength of the business community are also important drivers of headquarters locations in the Atlanta metropolitan statistical area (MSA). According to the Federal Emergency Management Agency, the Atlanta area has a very low risk for business disruption due to natural disasters, which is an important consideration for headquarters locations. Projects announced in 2015-2016 that brought, or will soon bring, job gains at headquarters operations include Mercedes-Benz USA, Honeywell division headquarters, Jindal Films national headquarters, Merchant e-Solutions, VIX Verify, Sage's North American headquarters, magicJack for BUSINESS, mLevel, Comcast regional headquarters, Wells Lighting, CSM Bakery Solutions, Courion and Osmose Utilities Services. Also, Global Ministries, the philanthropic arm of The United Methodist Church, recently moved its headquarters from New York to Atlanta, creating 168 jobs.

Transactions processing, data processing, cybersecurity and development of software and mobile apps will power Georgia's economic growth. Information technology (IT) companies that announced major

projects in 2015-2016 include GE Digital, Honeywell, NCR, VXi Global Solutions, ADP, Keysight Technologies, VIX Verify, Merchant e-Solutions, Applied Systems, Courion, Sage and Stefanini. Fintech is becoming a major cluster in the Atlanta MSA. Fiserv, a provider of financial services and technology solutions, will add 500 jobs over the next five years, bringing its total employment to about 2,500 workers.

Healthcare IT is an industry that promises to create thousands of high-paying jobs in Georgia over the next decade. For example, in 2016, Kaiser Permanente announced that it would create 800 jobs in the Atlanta MSA. These are in addition to the 900 jobs that would be created at its new IT facility in midtown Atlanta, announced in 2015. In 2016, Anthem, Inc., announced that it would create 450 new healthcare IT jobs in Columbus, Georgia. Azalea Health, a healthcare IT company that focuses on rural providers, will add 200 jobs at its Atlanta headquarters over the next several years.

The outlook for Georgia's healthcare providers is good, but not exuberant. Uncertainties regarding the Affordable Care Act as well as Georgia's nonparticipation in the expanded Medicare program cloud the outlook for the industry, especially for rural hospitals. Nonetheless, this sector will be one of the better performers in 2017. That's because of the large numbers of baby boomers who are reaching the age where the incidence of heart attacks, strokes, cancer and other care-intensive problems begin to rise rapidly.



Service businesses that either lower costs or provide necessities should do well. Georgia's staffing and temp agencies should do very well because the modest pace of economic growth encourages many firms to remain flexible and responsive to changing economic conditions.

Cyclical increases in economic activity combined with Georgia's strong transportation and logistics infrastructure will ensure job growth in the logistics and distribution industry. Announcements over the last few years include HD Supply, Polymer Logistics, Total Quality Logistics and United Arab Shipping Company. Georgia will benefit from many new logistical/distribution centers for both online and brick-and-mortar retailers, including Home Chef, Variety Wholesalers, Amazon, Dollar General, ThredUP, Ollie's Bargain Outlet, Badcock and Wal-Mart.

Generous incentives and the attainment of critical mass will ensure that Georgia's film industry contributes to economic growth in 2017. Georgia's film industry ranks third in TV and movie production, behind only California and New York. Its economic impact has been estimated at about \$7 billion.

Improving economic conditions – especially the upcycle in real estate – and improving demographic trends will help Georgia's financial institutions. Bank profits rose substantially in 2016. Rising asset values favor banks' top- and bottom-line growth. The prospects for deposit growth are excellent. Slightly wider net interest margins, in combination with a higher demand for most types of loans, will support Georgia banks' profits, but the high and rising compliance costs of re-regulations and fewer instances of mortgage refinancing will challenge the bottom line. Traditional banks and credit unions will see more competition from large retailers, venture capital funds, microfinance and other nonbanks that often are less heavily regulated.

For five straight years, the leisure and hospitality industry has outperformed Georgia's overall economy and will continue to do so in 2017. The lodging

U.S. and Georgia Economics, continued

industry's gains will be broadly based across both limited service properties that cater primarily to tourists and full-service properties that are popular with business travelers. Lodging demand will rise significantly from already elevated levels. Because the lodging market is not oversupplied, the benefits to the industry from higher demand will be significant. Due to the industry's impressive performance, most in-state lodging markets will see new development, but the number of new hotel rooms being completed will not outpace demand growth. The favorable overall balance of supply and demand will prompt further increases in average daily room rates, thereby adding to the industry's overall profits. Off-peak rates will not increase significantly, but peak room rates at better properties will set all-time record highs. On top of higher demand for rooms, increased utilization of many hotel services will bolster revenue per available room.

Although the overall economy will be expanding, there are still some headwinds and downside risks for the lodging industry. There will be more pressure on wages and salaries than in recent years, which will exert pressure on net margins. The call for a \$15 national minimum wage is a threat to Georgia's lodging industry. The \$5 statewide hotel/motel fee that went into effect in 2015 is also a negative factor. The shared economy is a potential disrupter for the traditional lodging industry, especially if such providers do not pay hotel/motel taxes and/or the new \$5 statewide hotel/motel fee.

In the first decade of the new millennium, Georgia lost more than 200,000 – or four out of every 10 – manufacturing jobs. The purge ended in early 2010. Over the last seven years, Georgia recovered more than 45,000 manufacturing jobs. Indeed, throughout 2015 and 2016, Georgia's manufacturing industries continued to expand even as U.S. manufacturing experienced a mild recession. The factors that pushed U.S. manufacturing into recession were felt in Georgia: low commodity prices, weak exports, an inventory correction

and a drop in investment spending by businesses. Georgia's manufacturing industry avoided recession because there have been many major economic development project announcements by manufacturers, bolstering growth in aircraft (e.g., Gulfstream), automobile (e.g., Sentury Tire, KIA and its growing roster of in-state suppliers), flooring (e.g., Mohawk Industries, Engineered Floors, Beaulieu International Group, Surya), building materials (e.g., Sparta Industries, EdenCrete, Caesarstone, Linzer Products, Aspen Aerogels, Viracon), food processing (e.g., Tyson Foods, Castellini Group, National Beef, Trident Seafoods) and chemical (e.g., Southern Ionics, Otsuka Chemical). It also helped that Georgia's manufacturing industry is not geared toward oil or natural gas production, and therefore was helped rather than hurt by the drop in oil and gas prices.

Going forward, Georgia will see substantial increases in advanced manufacturing activity and employment. Recent project announcements include Sentury Tire, Jindal Films, Aspen Aerogels, MI Metals, Alcon, Suniva, Eastman Kodak, Topper Print Co., Dasan Machineries, Aalto Scientific and Gerresheimer. Sentury Tire will establish an advanced tire manufacturing and research and development center in LaGrange, Georgia, that will employ over 1,000 people. The 2016 Sentury Tire announcement illustrates Georgia's growing economic ties with China and validates the establishment of the state of Georgia's two strategic economic development offices in China.

Cyclical economic recovery, more effective economic development policies, low domestic natural gas prices, rising wages and production costs in China and other overseas locations are some of the factors behind recent and expected increases in Georgia's manufacturing activity. Concerns about product quality and management of the risks associated with increasingly complex, time-sensitive supply chains also make manufacturing in

Georgia more attractive than manufacturing overseas. Additional factors that will help Georgia attract manufacturers include a superior transportation, logistics and distribution infrastructure; low costs of doing business relative to other highly developed economies; a favorable tax structure; highly ranked colleges and universities; Georgia Quick Start workforce training; and very competitive economic development incentives.

Manufacturers' contribution to Georgia's GDP will rise in 2017, but the incoming employment data imply that manufacturing jobs are not coming back too quickly. The state added 5,600 manufacturing jobs in 2011, 4,000 jobs in 2012, 2,900 jobs in 2013, 10,300 in 2014, 11,700 in 2015 and an estimated 8,300 in 2016. Manufacturing employment will rise by 5,900 jobs in 2017. That will sustain the cyclical recovery in manufacturing employment, but at that pace, it will take three decades to replace the manufacturing jobs that Georgia lost.

In terms of factory jobs, the talk of a manufacturing renaissance in Georgia is probably overblown, but the sector's output is growing much faster than its employment. Also, many of the jobs that were once done inside the factory are now outsourced to service providers, which are not counted as manufacturing jobs, but are nonetheless jobs that would not otherwise exist in Georgia. The multiplier effects of factory jobs are typically much higher than jobs in most nonmanufacturing industries. Many Georgia manufacturing industries also provide relatively high-paying jobs partially because many low-pay manufacturing jobs have either been offshored or replaced by technological advances and machines. Another factor that contributes to the importance of Georgia's manufacturing base is that research and development jobs are often located near clusters of related manufacturers, especially in technical and innovative advanced manufacturing industries. Those are often manufacturing industries with the highest wages and best potential for long-term growth.

Economic development

In recent years, Georgia's leaders passed key economic development legislation that made Georgia more competitive. Perhaps even more important, Georgia fields an extremely competitive team of economic development professionals. Georgia is viewed as a place where there's a good working relationship between government and other major players. Those factors, plus Georgia's major transportation and logistical advantages, a competitive tax climate and the No. 1 workforce-training program in the nation – Georgia Quick Start – helped to refill Georgia's economic development pipeline. For the fourth straight year, site consultants ranked Georgia the top state in which to do business.

Because it often takes many years to fully build out the typical economic development project, many of the projects announced over the last five years will continue to provide a substantial tailwind to Georgia's economic growth in 2017 and beyond. Examples of such projects include Baxalta's new facility, which will add 1,500 biotechnology jobs; Home Chef's decision to open a new facility in DeKalb County, Georgia, that will create more than 1,200 jobs; General Motors' IT-innovation center in Roswell, Georgia, that will bring 1,000 high-tech jobs; Honeywell's software development center and headquarters that will create more than 800 jobs; multiple floor-covering manufacturers that have announced expansion plans that will bring more than 3,000 jobs to Dalton, Georgia; Caterpillar's new facility that adds 1,400 jobs in the Athens, Georgia, area; Ernst & Young's new global IT center in Alpharetta, Georgia, that creates 400 new high-tech jobs; and Chime Solutions' call center in Morrow, Georgia, that is adding more than 1,100 jobs. Sparta Industries, a manufacturer of heating, ventilation and air conditioning (HVAC) components, will create more than 1,000 jobs in Milledgeville, Georgia. Kaiser Permanente will create 800 jobs at a contact center in Gwinnett County, Georgia. Mercedes-Benz USA relocated its headquarters to Atlanta, creating at least 800 jobs. Tyson Foods' expansion creates

500 jobs in Dooley County, Georgia. Voxpro will create more than 500 high-tech support jobs in Athens. Amazon will create more than 500 jobs at a fulfillment center near Braselton, Georgia.



Another reason Georgia will do well in 2017 is that the U.S. automobile manufacturing industry is becoming increasingly concentrated in the Southeast. Basically, when it comes to both distribution and consumer markets, Georgia is in the sweet spot in the middle of the Southern Auto Corridor, with proximity to major assembly plants, major suppliers, interstates, ports and railways. Georgia's major projects have included KIA's assembly plant in west Georgia and Mercedes' corporate headquarters in Atlanta. The new Volkswagen assembly plant just across the state line in Chattanooga, Tennessee, and the recent announcement that Volvo will build an assembly plant in Charleston, South Carolina, make Georgia an even more attractive place to site automobile parts suppliers. For example, Voestalpine Automotive Body Parts will expand its operations in Bartow County, Georgia, adding 150 jobs. Constellium, a manufacturer of aluminum products for the automotive and other industries, is establishing operations in Barrow County, Georgia, creating more than 150 jobs. Nifco KTW is locating its U.S. operations in Toccoa, Georgia, creating 200 jobs.

Due to cost, logistics and tax advantages, Georgia is very competitive with other states when it comes to landing economic development projects. Many companies move to Georgia to cut costs. As noted above, these advantages began to bear more

fruit from 2012 to 2016. That's partially because Georgia made several strategic shifts in its economic development strategy, including the creation of a large deal closing fund and the elimination of sales and use taxes on energy used in manufacturing. The exemption for energy used in manufacturing was phased in and reached 100 percent in 2016. Also, in 2016, business inventories became fully exempt from the state property tax and most counties – 85 percent – already have a Level One Freeport Exemption. These changes in tax policy will boost Georgia's economy in 2017.

Legislation has made Georgia more competitive, but Georgia will have to be very aggressive in closing the right deals. Georgia should target industries that expand the economic base and have good potential for long-term growth. Georgia must invest strategically and grow clusters in areas ranging from biotechnology to advanced manufacturing. The focus should be on innovation-based companies. Of course, Georgia must also make sure that its statutory incentives remain competitive – statutory incentives help to get Georgia short-listed by site selection professionals. Then, only after Georgia is short-listed, do those critical deal-closing incentives come into play.

A review of economic development announcements issued by the Office of the Governor and the Georgia Department of Economic Development indicates that economic developers are closing many deals in industries in which the state has the ability to produce at low opportunity and marginal costs, a comparative advantage. Specialization in activities where Georgia has comparative advantage bodes well for sustained success of the companies that received incentives, thereby enhancing the prospect for long-term economic growth. Logistics, transportation, distribution, warehousing, information technology, transactions processing, headquarters operations, floor coverings, automotive parts, food processing and professional and business services are good examples of industries where Georgia competes effectively.

U.S. and Georgia Farms

By Brady Brewer

According to the 2016 farm income and expense estimates by the U.S. Department of Agriculture Economic Research Service (ERS), gross farm receipts for 2016 are expected to be \$400 billion. This represents a 5.6 percent decline from 2015 and a 14.85 percent decrease from 2014's high of \$470 billion. Receipts from the two major farm industry categories – crops and livestock – decreased from their 2015 levels by 6.7 percent, for crops, and 3.7 percent, for livestock. These decreases in gross receipts reflect the lower commodity and livestock prices that producers have received. National net cash income decreased by 13.3 percent from 2015 to 2016.

For Georgia, the trends for gross receipts for crops and livestock as well as net cash income are similar to the overall national trends. The USDA does not release individual state estimates until year-end, thus, at the time of this writing, there are no 2016 numbers for Georgia individually. However, the previous year trends from Georgia from 2014 to 2015 provide insight on what we can expect for the upcoming year while using the national trend as confirmation that Georgia's declining farm receipts will continue into the near future. From 2014 to 2015, Georgia's crop receipts declined 7.6 percent and livestock receipts declined 9.4 percent. Overall net cash income fell 9 percent for the state of Georgia.

This decrease in net cash income is a leading contributor to the decrease in on-farm expenditures. According to the ERS, capital expenditures for machinery and vehicles decreased by 3.3 percent from 2015 to 2016, expenditures on animals and products decreased by 10.9 percent from 2015 to 2016, and expenditures on purchased inputs decreased 5.7 percent from 2015 to 2016. Another expenditure category that is expected to decrease is farm household expenditures. In the third-quarter survey of agricultural lenders by

Figure 1. Farmland values.

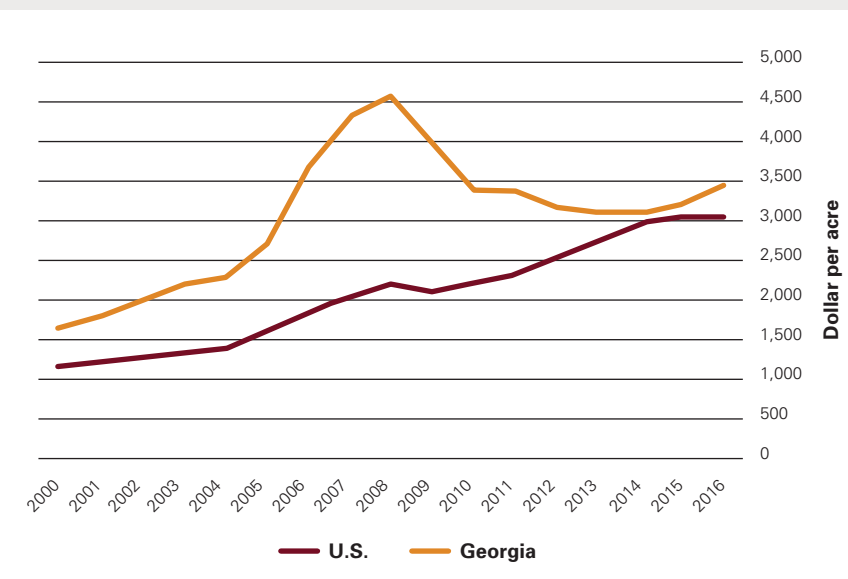
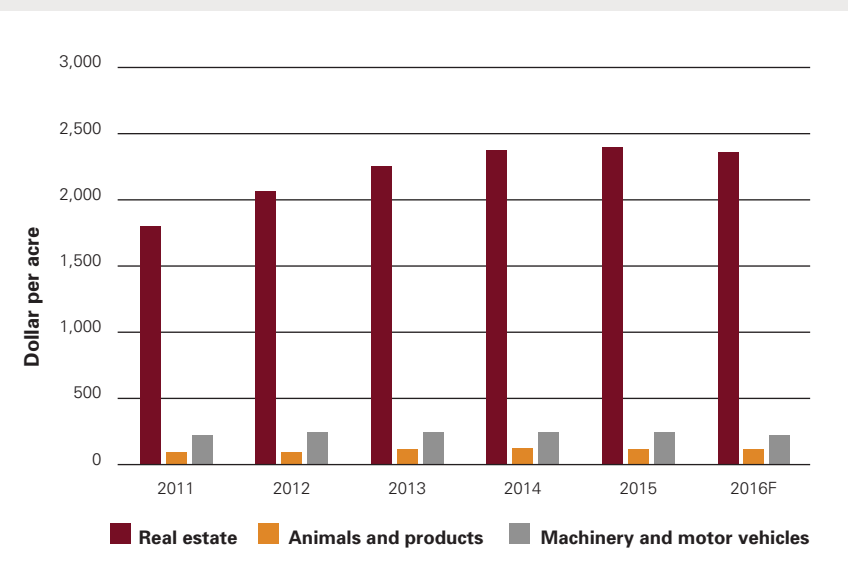


Figure 2. Farm assets by category.

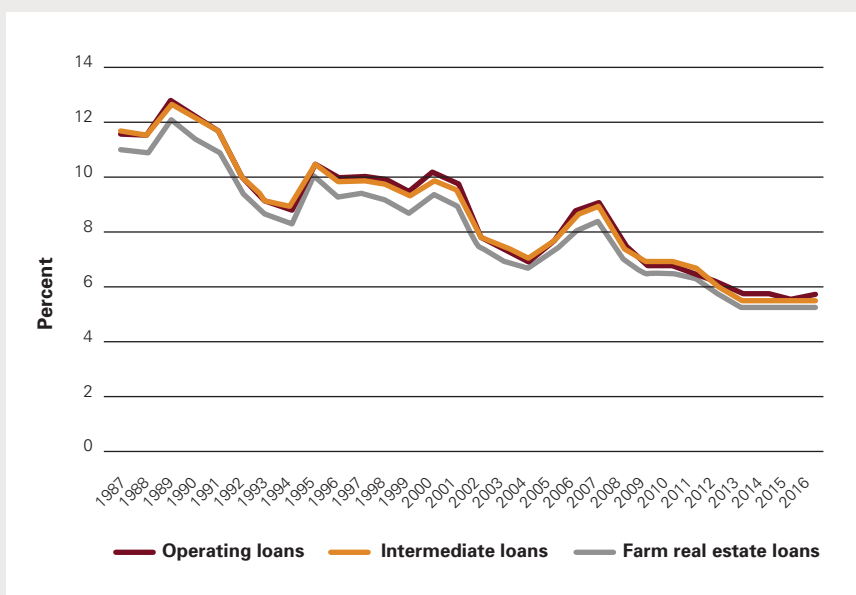


the Federal Reserve, a majority of senior loan officers expected their clients to decrease not only on-farm spending, but household spending as well.

According to the ERS, farmland can comprise up to 80 percent of a farmer's balance sheet, so farm real estate values have implications for farmers seeking inputs and credit as farmland is a common source of collateral. The U.S. has experienced steady growth in farmland values for the past 15 years. Farmland values declined by 0.33 percent from 2015 to 2016 (Figure 1). This is the first decrease in the national farmland value since 2009. The decrease in farmland values is a significant contributor to the overall value of farm assets held in the U.S. decreasing 2.2 percent from 2015 to 2016. Historical valuation of the major asset categories for U.S. farms is displayed in Figure 2. If the trend in farm real estate values continues through 2017, we can expect the overall farm asset valuation to decrease as well. This decrease in farmland was experienced for both cropland and pastureland. Georgia's agricultural farmland value is divergent from the national trend. Georgia's farmland value rose 7.9 percent from 2015 to 2016.

National debt levels for U.S. farms decreased 0.8 percent from 2015 to 2016. This is the first decrease in total farm debt in the past six years. Breaking down this total debt number, farm real estate debt increased by 2 percent from 2015 to 2016, and non-real estate debt decreased by 4.6 percent. The decrease in non-real estate debt is expected to continue for the foreseeable future, with low net cash incomes persisting and farmers becoming more prudent when making capital investment decisions that are not farm real estate. However, with the decrease in net cash income, demand for operating loans is expected to be high, as farmers will have less cash on hand to purchase the essential inputs for production. Given the new trend of farmers being prudent and moderating capital expenditures, the overall debt levels of farms in the U.S. has remained fairly stagnant. The overall debt-to-asset ratio of U.S. farms increased marginally from 12.3 percent in 2015 to 12.4 percent in 2016.

Figure 3. Farm interest rates.



One area of concern moving forward is how the current debt issued to farmers will fare if interest rates were to increase. According to the Agricultural Finance Databook published by the Federal Reserve, farm real estate interest rates are at historic lows. Figure 3 shows the current trend in interest rates since 1987. The current farm real estate interest rate is reported as 5.32 percent for the third quarter of 2016. These low interest rates are a result of the current federal funds rate being close to zero due to the previous recession. Expectations are that a reversal of policy from the Federal Open Market Committee (FOMC) can be expected sometime in 2017, depending on the strength of the overall U.S. economy. However, it is also expected that the FOMC will increase the federal funds rate in small gradual steps that should give debtholders time to adjust. However, given the Farm Credit Administration report that around 70 percent of all farm real estate loans are secured with a fixed interest rate, any movement of the federal funds rate won't have significant impacts on already secured farm real estate debt, which accounts for 60 percent of the U.S. farm balance sheet.

With the decrease in net cash income that has been reported for the past two years, another area of emphasis is how U.S. and Georgia farmers will fare in the lending sector. An agricultural lender survey conducted by the Federal Reserve shows that a majority of senior loan officers feel that loan delinquency rates will increase over the next year. These same loan officers expect banks to tighten restrictions and increase the collateral required to underwrite a loan over the coming months. Agricultural banks have remained strong in loan portfolios and have been more profitable than their counterparts who are not classified as agricultural banks. These loan restrictions are in response to the decline in net cash income to minimize the risk of their loan portfolios moving forward.

Peanuts

By Adam Rabinowitz

Last year, 2016, started as a year of expected oversupply for peanuts after Georgia had a record-producing crop in 2015 and carryovers of peanut stocks were projected to be near record levels in the U.S. With potential constraints on warehouse capacity, growers were advised to reduce planted acres or contract for space to reduce the risk of not having a home for their peanuts. The availability of the Price Loss Coverage (PLC) on peanuts and the low prices on other crops posed a difficult planting decision for growers who also needed to consider crop rotation needs.

In response to projected supply concerns, the total acres of planted peanuts in Georgia was 720,000 in 2016, down 8.3 percent from the record high of 785,000 in 2015. Even with this decrease, planted acres were 22 percent higher than the 10-year average. This raised further concerns of oversupply and resulted in lower prices. As the year progressed, peanut exports reached record levels on shipments to China and Vietnam. Exports to China were primarily lower-valued raw peanuts shipped in shell to be used in crush, while exports to Vietnam were primarily raw shelled peanuts.

Weather also played a big role in 2016, with a significant drought in the Southeast that resulted in low yields and poor quality on dryland fields. Irrigated peanuts have fared well but needed significant water usage given the lack of help from Mother Nature. On the opposite weather extreme, Hurricane Matthew produced floods in North and South Carolina, an area that was hit hard by flooding in 2015 as well. While some peanut farmers in that region were able to harvest their crop before the storm hit, there were still areas that were under water and represented a total loss.

Again, even with reduced plantings and adverse weather, harvested acres are projected to be 22 percent higher than the 10-year average. The total number of acres harvested is down 8.6 percent from

2015, with 710,000 projected (Figure 1). The drought has also affected yield that was originally forecast to be a Georgia record in 2016. As of early November, yield projections were 4,200 pounds per acre, although that number may need to be revised slightly lower when final numbers for the crop season are released. If the projections of a 4,200-pound-per-acre yield and 710,000 acres harvested hold, the total

production in Georgia will be 2.98 billion pounds. This would be the third-highest production on record, but still 11.4 percent less than last year's record crop.

While Georgia acres are down from 2015, the total number of planted acres across the U.S. increased 2.9 percent to 1.7 million acres, a new record. This was driven by 305,000 acres planted in Texas, an increase of 79 percent over 2015 and a total acreage

Figure 1. Georgia peanut acres planted, harvested and yield.

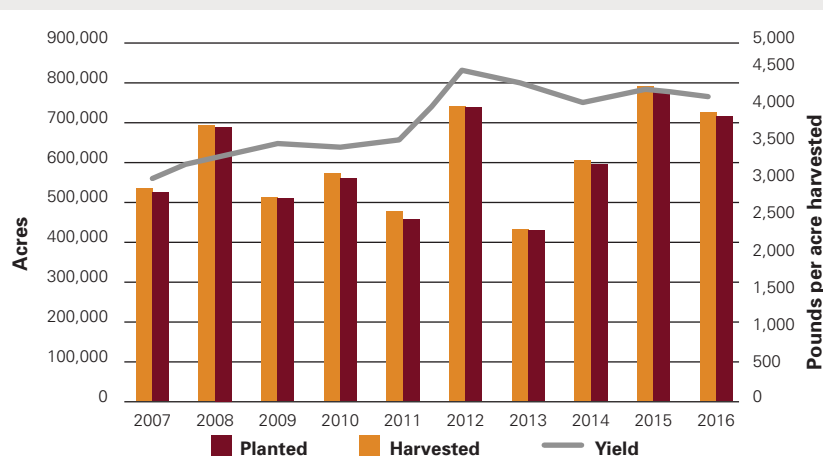
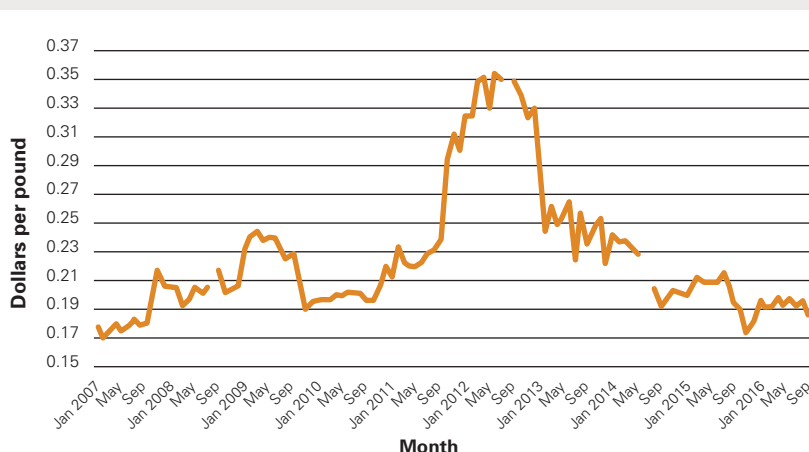


Figure 2. Georgia peanut prices received.



in Texas not seen since 2002. Consequently, harvested acres are expected to be up from 2015 to 1.6 million acres. Meanwhile, yields across the U.S. are projected to be the third highest on record at 3,934 pounds per acre. This is projected to result in a total production of 6.2 billion pounds, up 4 percent from 2015.

The demand for peanuts remains strong in the U.S., with domestic food use continuing to increase and projected to be 3.18 billion pounds for the marketing year ending July 31, 2017. Crush is also expected to increase to 830 million pounds, up 17 percent from the prior year. Alternatively, seed and residual use is down 44 percent to 575 million pounds. Given the exports to China and Vietnam, total exports are also strong at 1.5 billion pounds. While the strength in both domestic and export demand is a positive signal for the industry, ending stocks are forecast at 2 billion pounds come the end of the marketing year.

The price for peanuts received by Georgia farmers in 2016 has been around 19 cents per pound or in the range of \$380 to \$395 per ton. This price was last reached briefly in late 2009 but more significantly in 2007 (Figure 2). Given the low farm price and farm bill statutory reference price of 26.75 cents per pound (\$535 per ton), a PLC payment has been made for two years now, with a third projected. In October 2015, a payment of 4.75 cents per pound was made following the harvest of 2014. After the harvest of 2015, a PLC payment of 7.45 cents per pound was made in October 2016. The 2016 harvest (marketing year 2016-2017) is projecting a PLC payment rate of 7.55 cents per pound, although that will not be known until August 2017, to be paid in October 2017.

The projected large ending stock on July 31, 2017, is a good indication that more of the same marketing conditions may be present in the coming year. In order to realize higher farm prices, a combination of two things must occur: Additional demand must be created and/or supply must be constrained. With recent reports of the healthfulness of peanuts and peanut butter, we're seeing promising increases in demand.



There are mixed views, however, about whether exports to China will continue. Some industry experts expect that strong exports to China will continue, while others expect China to come and go from the market in a more cyclical pattern. There are also questions about trade in general related to the new presidential administration.

In addition to demand, supply is an ongoing uncertainty. Farmers need to consider crop rotation after having planted peanuts after peanuts in an effort to capitalize on PLC payments. Continuing this trend will subject the crop to disease and lower yields. However, low prices on other commodities and the current farm bill continues to make it conducive to another year of record level plantings. In addition, cotton is pursuing a federal program that could shift planting decisions away from peanuts. This would help with the rotation of crops and the reduction of supply, leading to increased prices.

Ultimately, there are a lot of unknown factors with respect to price at this time. As of mid-December, some farmers have been offered contracts around \$475 for part of their 2017 crop. We could see prices continue to increase if exports stay strong and/or supply shrinks. In the end, farmers need to consider their individual risk tolerance and what makes sense for their businesses given their financial situation.

Sources: Various publications and Quick Stats application from the U.S. Department of Agriculture. 2017 price projections by UGA Assistant Professor and Extension Specialist Adam N. Rabinowitz.

Row Crop Net Returns

By Amanda Smith, Adam Rabinowitz and Don Shurley

As of November 2016, commodity prices for the major row crops grown in Georgia are down from this time last year, except for peanuts. Cotton prices are down due to lingering large global supplies and flat demand. Corn, soybean and wheat prices are down because of another year of excellent U.S. and global production and large global supplies. To add to this, a strong U.S. dollar weakens demand for U.S. exports of these crops. Peanuts are the exception. Despite U.S. production that exceeded domestic consumption in 2016, export demand for peanuts far outpaced expectations. Consequently, early price estimates for peanuts going into 2017 are better than what was anticipated just a year ago. From an input standpoint, fertilizer and fuel prices are down, but seed, chemical, labor and equipment prices are up slightly. This upcoming year will mean even tighter margins for growers as compared to 2016. Producers need to thoroughly evaluate expected prices, yields and costs before determining what to plant in 2017. Furthermore, they need to consider the impact that the farm bill safety net programs, such as crop insurance, the Stacked Income Protection Plan (STAX) for cotton and the Price Loss Coverage (PLC) or Agriculture Risk Coverage (ARC) programs for the other commodities, may have on cash flow and net returns.

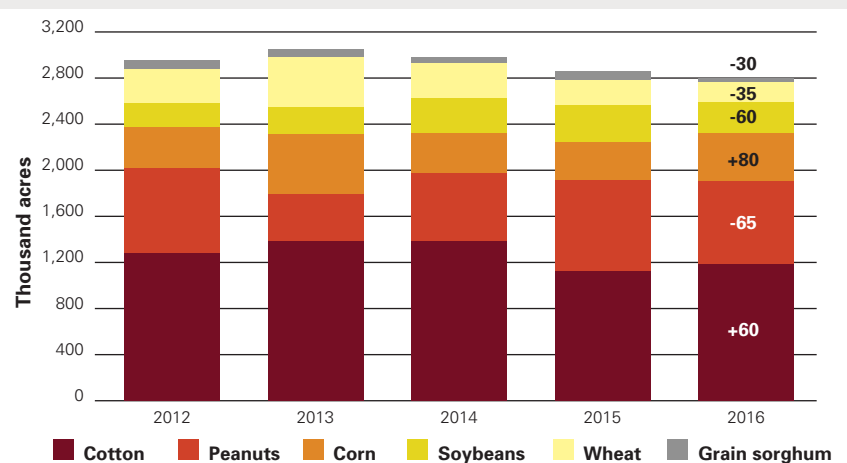
Producers base planting decisions on expected price, input costs, historical and projected yields, crop rotation, availability of credit, potential government payments and weather expectations. Risk management tools, like crop insurance, are also part of the decision process. Figure 1 shows the planted acres for select row crops in Georgia from 2012 through 2016. Producers' planting decisions in 2016 resulted in a nearly acre-for-acre shift from peanuts into cotton. Georgia producers planted more cotton – up 60,000 acres – and fewer peanuts – down 65,000 acres. This was most likely to

keep in line with crop rotation and due to concerns about storage availability without a peanut contract for 2016. Georgia producers planted more corn – up 80,000 acres – and fewer soybeans – down 60,000 acres. Due to another year of low prices resulting from abundant domestic and global supplies of wheat, producers in Georgia planted 35,000 fewer acres in 2016 than 2015. Grain sorghum acreage was also down 30,000 acres because of increased pest pressures brought on by the sugarcane aphid.

made to the 2016 University of Georgia enterprise budgets for corn, cotton, grain sorghum, peanuts, soybeans and wheat. These budgets and the 2017 Crop Comparison Tool can be accessed online at agecon.uga.edu/extension/budgets/ or by contacting your local UGA Extension agent.

Budget estimates should be used as a guideline or starting point for individual operations whose yields and local prices for inputs will vary. Producers are encouraged to use the budgets by entering

Figure 1. Planted acres and change from 2015 of selected row crops in Georgia, 2012 to 2016.



Source: U.S. Department of Agriculture Farm Service Agency and National Agricultural Statistics Service.

Table 1 shows preliminary estimates of how net returns are likely to compare for Georgia row crops in 2017. Both nonirrigated and irrigated expected prices, yields, income, costs and net returns are shown for comparison. These are estimates of relative net returns based on current market conditions and expectations prior to planting. Expected income does not include potential payments received from government programs, such as the PLC or ARC program or cotton-specific STAX crop insurance program. Expected yields and variable costs are based on adjustments

their own numbers to determine which crop enterprise will provide the highest net return for their operations.

Break-even price and yield are included in Table 1 for producers to consider when making a pricing decision. The break-even price is the price a producer must receive to cover their variable costs, or operating expenses, at the expected yield (found in the third column in each table). The break-even yield is the yield needed to cover variable costs given the expected price. The expected price for each of Georgia's major row crops is found in the second column of

each table. Expected prices are estimates based upon current (November 2016) 2017 harvest-time futures prices and adjusted for expected basis, except for peanuts. The expected peanut price is a weighted average price based on contract expectations on limited quantities and anticipated harvest price. Expected cotton price includes a loan deficiency payment or marketing loan gain and accounts for expected adjustments for fiber quality. Producers should consider forward pricing a portion of their production at prices that have the highest probability of profit. The break-even prices and yields shown do not include returns to land (land rent) and management (payment to the producer). A producer should account

for these costs when marketing their crop.

Relative net returns for nonirrigated production appear to favor peanuts and cotton. Producers may also consider double-cropping some acres with wheat prior to planting cotton or soybeans. Irrigated production appears to favor peanuts and cotton followed by soybeans and corn. Producers should place priority on crop rotation when net returns are comparable among crops. Cotton and peanut acres are likely to increase in 2017. Soybean acres will likely remain stable. Corn and wheat acres are likely to decrease because of depressed prices. Grain sorghum acres are likely to be down again because of the high costs in dealing with pest pressures.

Table 1. Per acre net return above variable cost, break-even price and yield.

Nonirrigated production							
	Expected price ¹	Expected yield per acre	Income per acre ²	Variable costs per acre ³	Net return per acre ³	Break-even price ³	Break-even yield per acre ¹
Corn	\$4.15/bu	85 bu	\$353	\$300	\$53	\$3.53/bu	72 bu
Cotton	\$0.70/lb	750 lb	\$525	\$390	\$135	\$0.52/lb	557 lb
Grain sorghum	\$3.80/bu	65 bu	\$247	\$210	\$37	\$3.23/bu	55 bu
Peanuts	\$430/ton	1.70 ton	\$731	\$530	\$201	\$312/ton	1.33 ton
Soybeans	\$9.50/bu	30 bu	\$285	\$200	\$85	\$6.67/bu	22 bu
Conventional wheat	\$4.15/bu	55 bu	\$228	\$190	\$38	\$3.45/bu	46 bu
Intensively managed wheat	\$4.15/bu	75 bu	\$311	\$270	\$41	\$3.60/bu	65 bu
Irrigated production							
	Expected price ¹	Expected yield per acre	Income per acre ²	Variable costs per acre ³	Net return per acre ³	Break-even price ³	Break-even yield per acre ¹
Corn	\$4.15/bu	200 bu	\$830	\$570	\$260	\$2.85/bu	137 bu
Cotton	\$0.70/lb	1,200 lb	\$840	\$480	\$360	\$0.40/lb	686 lb
Grain sorghum	\$3.80/bu	100 bu	\$380	\$315	\$65	\$3.15/bu	83 bu
Peanuts	\$430/ton	2.35 ton	\$1,011	\$620	\$391	\$264/ton	1.55 ton
Soybeans	\$9.50/bu	60 bu	\$570	\$270	\$300	\$4.50/bu	29 bu

¹ Prices are 2017 harvest-time futures prices as of November 2016, adjusted for expected basis. Peanut price is weighted average based on contract expectations on limited quantities and anticipated harvest price. Cotton price includes a LDP or MLG and adjustments for fiber quality. Season average prices may vary. This analysis shows "relative" returns for comparison and ranking only.

² Income per acre does not include government payments from PLC, ARC, STAX or other crop insurance programs.

³ Excludes handweeding, land rent, fixed costs and any custom harvesting, storage, hauling, etc., if necessary. Due to volatility in the input markets, variable costs could change ± 5 percent.

Source: Data based on authors' revisions of the 2016 UGA Enterprise Budgets for Corn, Cotton, Grain Sorghum, Peanuts, Soybeans and Wheat.

Cotton

By Don Shurley

In terms of price, the 2016 crop year has been a better season for cotton growers as compared to 2015. Looking ahead to the 2017 crop year, the global cotton situation seems on more favorable economic footing than a year ago. Whether this will translate into even better prices is yet to be seen. The improving supply-and-demand picture over the past year does, however, provide stability and a sense of optimism for the 2017 market.

Present price picture

Producers had good marketing opportunities for the 2016 crop. Opportunities to contract or take price risk protection at 70 to 75 cents were available. Such opportunities never materialized for the 2015 crop. As this is being written, futures prices for the 2016 crop are in the upper 60s – down from peaks in the 72- to 75-cent range earlier, but seemingly comfortable in a range of mostly 67 to 71 cents. Prices for the 2017 crop (December 2017 futures) are in the upper 60s to near 70 cents. Compared to the 2016 crop, futures prices for the 2017 crop are about 5 cents above the same time last year. Prices for the 2016 crop did not reach the upper 60s until midsummer 2016.

U.S. situation and outlook

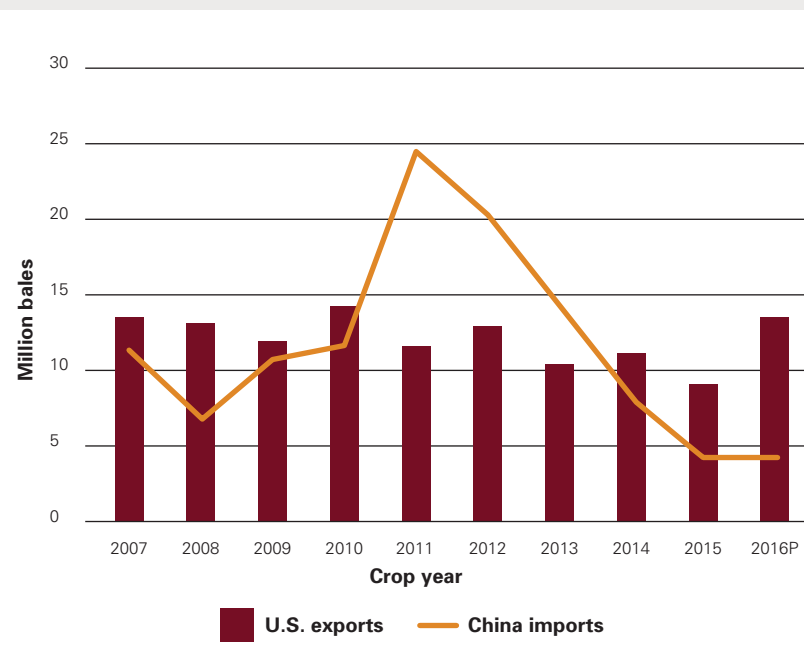
U.S. growers planted 10.15 million acres of cotton in 2016, up 18.3 percent. The 2016 crop is currently projected at 16.16 million bales, up 25 percent. Hurricane Matthew reduced the North Carolina-South Carolina crop by 95,000 bales. The Georgia crop was reduced 150,000 bales due to late-season drought. But, improving yields in Mississippi, Tennessee and Texas more than offset these declines.

Acreage was up in 2016 despite futures prices ranging from less than 60 cents to 65 cents during most of the planning and planting period. Acreage increased because: (1) acreage that was intended to be planted in 2015 was not put in due to unfavorable

weather; (2) some cotton-producing areas have few, if any, feasible alternatives to cotton and plant cotton regardless of the market; and (3) the marketing loan loan deficiency payment (LDP) provision insulates the grower from low prices.

U.S. exports are projected at 12 million bales for the 2016 crop year, an increase of 2.85 million bales. For the past two crop years, China has imported minimal amounts of cotton. Increased exports, especially given minimal buying by China, have been a market-stabilizing factor. Mill use has improved in China and is trending up in Bangladesh, Indonesia, Vietnam and Turkey. China has been buying less, but exports to other countries offset the decline to China. U.S. cotton acreage will likely increase in 2017. For prices to hold at 2016 levels or better, demand must continue to stabilize and/or improve and exports must continue to be good.

Figure 1. China imports and U.S. exports.



China situation

By the end of the 2014 crop year, China had amassed 67 million bales in inventory resulting from increased imports, increased production and shrinking mill use. By the end of the 2016 crop year, it is projected that stocks will have declined 28 percent. Stocks will still be large by historical standards, but the decline has helped bring global supply and demand into closer balance.

China's stocks are both government-owned and merchant-owned. In 2016, 12 million bales of government stocks were sold, far exceeding what was thought likely due to unknowns about the quality and pricing of the cotton. The sell-off and availability of stocks have acted to "jumpstart" the use of cotton in China's mill industry and stabilized the price situation. Mill use is forecast at 35.5 million bales for the 2016 crop year compared to 35 million in 2015 – a fractional increase, but a signal

of hope for now and the future. China has reduced planting and imports due to declining mill use and efforts to utilize its stocks. Additional government reserve sales are planned for 2017. Price direction for 2017 cotton will be impacted by these 2017 sales. Will sales match 2016? As sales dig deeper into reserves, is fiber quality an issue? U.S. exports depend in part on China mill demand and reserve sales.

Demand

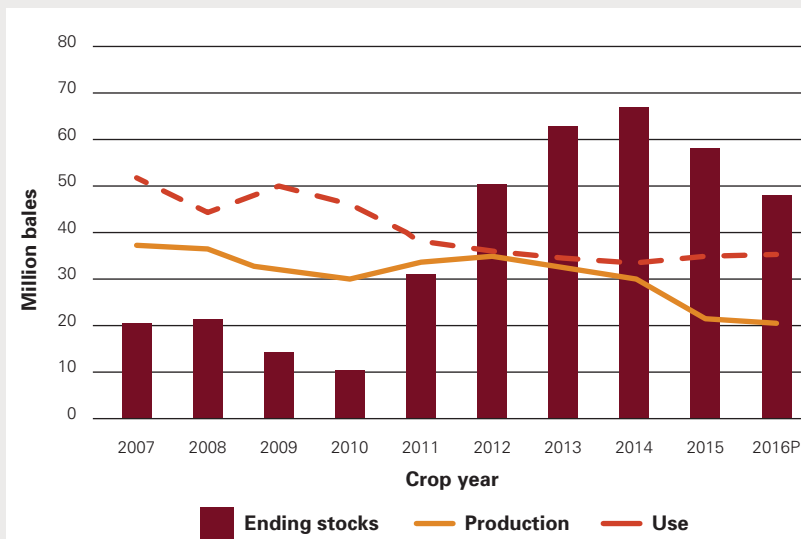
Cotton use has been flat since the 2013 and 2014 crop years. Use has stabilized from the dramatic decline of previous years, but stability is not what the cotton industry needs. If U.S. cotton acreage is to increase and if its infrastructure is to survive, production must decline in other countries or demand must grow. There is much discussion within the cotton industry concerning demand. World demand for the 2016 crop year is projected at 112 million bales. This is only 0.65 percent above last year and less than 2 percent growth since 2013.

One issue is the “price problem,” or loss of market share due to substitution with man-made fibers. Other issues are “structural” and reflect changes in consumer preference and buying patterns. It is also believed that decline is partly due to the viewpoint that cotton production is not environmentally friendly or sustainable. Research, education and promotion must be ongoing to improve cotton's image and develop new fabrics that appeal to the consumer. These are longer-term solutions, however.

Farm bill issues

The year 2017 will be the fourth year of the five-year 2014 farm bill. Cotton's issues include competitiveness on generic base, the Stacked Income Protection Plan (STAX) and the cotton loan rate. ARC/PLC payments are available for “covered commodities,” which exclude cotton. Payments, if any, are received on 85 percent of “permanent base” plus 85 percent of “temporary base.” Temporary base is earned by planting covered commodities on a farm with Generic Base. Agriculture Risk Coverage (ARC) and Price Loss Coverage

Figure 2. China cotton production, use and stocks.



(PLC) payments are difficult to predict, but the likelihood for payments creates competition for cotton when making planting decisions.

STAX is now cotton's safety net. Participation has not been stellar. Modifications were made for 2016, but did not result in substantial increase in enrollment. The loan rate for cotton is no longer fixed. The loan rate is the average adjusted world price (AWP) for the most recently completed two crop years, but not less than 45 cents or more than 52 cents. The loan rate for the 2017 crop will be 49.49 cents per pound compared to 52 cents for 2016. If cotton prices are in the mid-60s or higher, this becomes irrelevant. If prices are lower, the LDP or marketing loan gain (MLG) will be roughly 2.5 cents less.

Summary and 2017 price outlook

Crop prices for 2017 may not be different than for the 2016 crop, but the foundation seems set for prices to possibly do better. Demand has at least shown stability. This is cautiously optimistic. U.S. exports have been good, but prices below 70 cents seem to result in better exports. Exports seem to shut down when prices advance above 70 cents. Better prices for the 2017 crop will depend on stability and growth in demand, and continued good exports.

U.S. cotton acreage may increase in 2017. If prices hold in the upper 60s or at 70 cents or better, cotton will provide competitive net returns. Corn and soybean prices for 2017 are not as high relative to cotton as they were for the 2016 crop. Prices may be good and peanuts offer the main competition for cotton, but rotation may be a limitation. China will conduct additional reserve sales in 2017. This will further reduce stocks and may continue to fuel increased use in China's mills. Unknowns are whether sales can match the success of 2016 and whether fiber quality becomes an issue.

China and world stocks are still large by historical standards. Stocks outside the U.S. and China have tightened since 2014 due to fluctuations in foreign production and increased mill use in some countries. These tighter stocks should bode well for U.S. exports. Growers, especially in the Southeast, have benefited from strong basis and fiber quality premiums. Assuming these remain good, and considering supply and demand factors, prices for the 2017 crop are likely to be similar to 2016 or better. Growers had marketing opportunities above 70 cents for the 2016 crop. Such opportunities are likely again. A plan that begins marketing and risk management at 70 cents seems prudent for 2017 cotton.

Fruits and Nuts

By Esendugue Greg Fonsah

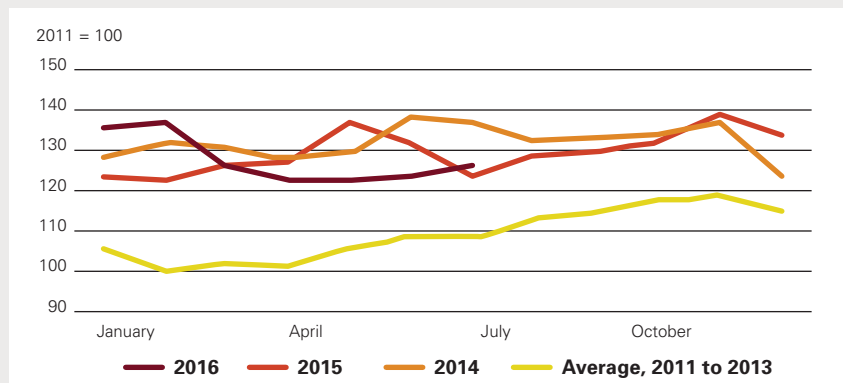
Georgia's fruits and tree nuts industry is dynamic and fast growing. In less than a decade, the farm gate value has increased almost twofold, from \$450.7 million in 2010 to a record \$772 million in 2015. According to the U.S. Department of Agriculture, farm gate value for fruit and tree nuts is expected to increase in 2017.

The U.S. Department of Commerce report indicates that exports of tree nuts were sluggish in 2016 as compared to 2015. Almond (shelled basis) exports amounted to 1.2 billion pounds from September 2015 to August 2016, almost the same as in 2015, thus no change. Walnut (shelled basis) exports from October 2015 to September 2016 were up by 20 percent compared to 2015. By contrast, pecan exports from October 2015 to September 2016 were down by 14.4 percent, while pistachio exports from September 2015 to August 2016 were down by 37.4 percent.

The grower's price index is a measure of changes to what the farmers received for their crops in different time periods or years. Compared to the previous three years, the grower's price index for fruit and nut started off strong in 2016 but suddenly dropped in the second quarter. Despite 2016's weak second quarter performance, fruits and nuts producers have enjoyed and benefited from a continuously strong grower's price index since the lower average recorded from 2011 to 2013 (Figure 1).

Georgia peach production increased from 71 million pounds in 2014 to 81 million pounds in 2015 and 86 million pounds in 2016. Nationwide, peach production was up 2 percent in 2016 due to the substantial increase in Georgia and South Carolina, two of the three peach-producing states. The increase was not strong enough to dampen overall prices because California, the largest peach-producing state, experienced a 15 percent decrease in production due to extreme weather conditions in May.

Figure 1. Index of prices received by growers for fruits and nuts, 2013 to 2016.



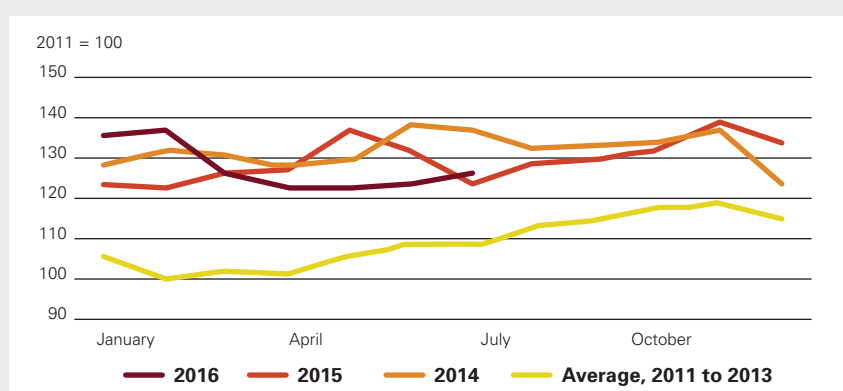
Source: U.S. Department of Agriculture Farm Service Agency and National Agricultural Statistics Service, agricultural prices.

A short harvesting and market window between Florida and Georgia created a surplus supply of blueberries that subsequently reduced prices in 2016. Severe weather conditions were responsible for the 15 percent decrease in blueberry production in the eastern United States this year compared to 2015. Similarly, watermelon suffered from low yields and productivity in Georgia, Florida, South Carolina, Arizona and California.

The consumer price index (CPI) for fruits remained strong in 2016 compared to 2015, but the 2016 CPI was slightly lower than the 2014 CPI. Overall, the CPI has been consistently strong for the past three years, and it is expected to be even stronger in 2017 (Figure 2).

If unpredicted weather conditions persist, there will be natural shortages that would boost prices for fruit and nut crops, and the consumer and grower's price indices will remain strong in 2017.

Figure 2. U.S. consumer price index for fresh fruits.



Data sources: U.S. Department of Labor Bureau of Labor Statistics.

Vegetables

By Esendugue Greg Fonsah

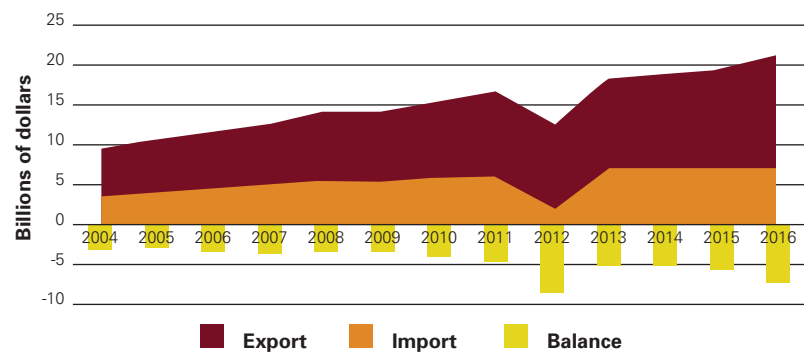
With a combined farm gate value of \$1.77 billion, the Georgia fruit and vegetable industry is a significant contributor to the state's economy. About 35 different vegetables, including melons, account for slightly more than \$1 billion in value.

U.S. Department of Agriculture Economic Research Service data shows that there was a 6.3 percent increase in vegetable-harvested area – excluding melons – in 2016 compared to 2015, but this increase was not enough to dampen total crop value, which increased from \$20.4 billion to \$21.7 billion in the same time period. This is because the overall unit value of vegetables – excluding melons – also experienced a 6.8 percent increase in 2016 (\$17.13) as compared to the 2015 production season (\$16.04). The total value of fresh vegetables alone was up by 10.9 percent, whereas the total crop value was up by 13.1 percent. The strong crop and unit values for vegetables are expected to remain the same in 2017, no matter the direction of harvested acreage.

The U.S. is among the top five largest producers of vegetables in the world. Although the U.S. is making significant progress in terms of vegetable export, the amount imported has been superior to the amount exported for over a decade.

For instance, in 2004 the U.S. exported \$3.5 billion in vegetables and imported \$6.2 billion in vegetables, incurring a negative balance of \$2.7 billion in vegetable trade. That picture has increased significantly for the past decade. In 2016, the value of U.S. vegetables exported was worth \$7 billion as compared to \$13.8 billion imported. This translates to a \$6.8 billion deficit, or a two-and-a-half-fold increase in the balance of vegetable trade. Total vegetable exports were up by 3.3 percent, whereas fresh vegetables – excluding melons – were up 5.9 percent (Figure 1). This trend is forecast to continue in 2017.

Figure 1. U.S. import and export trade balances for vegetables.

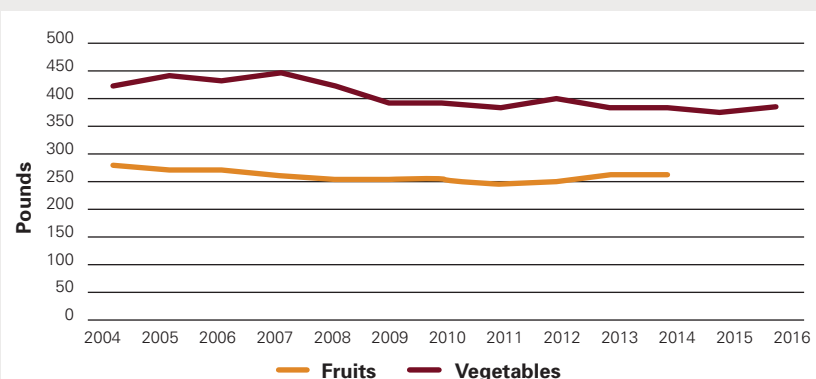


Overall, per capita consumption of vegetables has been trending downward since 2004. However, per capita vegetable use was up to 381.2 pounds in 2016 as compared to 373.9 pounds in 2015, an increase of 1.9 percent (Figure 2).

This trend and the demand for vegetables is expected to continue increasing in 2017, and it is an indication that Americans are eating more vegetables, although not as

much as a decade ago. Due to population growth and ongoing campaigns for awareness of healthy food, this will lead to continued vegetable production growth domestically as well as increased import growth. Furthermore, there was a 1 percent increase in the consumer price index (CPI) for vegetables in 2016 as compared to the same time period in 2015.

Figure 2. The U.S. per capita consumption of vegetables and fruits, 2004 to 2016.



Grains and Soybeans

By Adam Rabinowitz

Wheat and soybean production in Georgia decreased in 2016, while corn production increased 24 percent. Meanwhile, yields followed a similar pattern, with corn yields up 15 percent while wheat and soybean yields were at or below 10-year averages. Prices for all three commodities are experiencing similar challenges, and 2016 saw lower prices that were last seen around 2006-2007. Forecasts for 2017 show some rebound in prices for all three commodities, although increases will be modest and subject to a variety of unknown conditions such as weather, crop rotation needs, and changes in trade and agricultural policy.

The drought of 2016 during late summer and early fall has presented some issues during harvest. It looks like a weak La Niña weather pattern will further add to the dryland challenges in late 2016 and early 2017. Crop rotation needs are also present in Georgia as peanuts have been planted after peanuts on some atypical rotation cycles. This may result in growers considering different planting decisions in 2017 due to needs to control soil health, disease and the pest population. Lastly, the new presidential administration presents unknowns to agriculture as changes in trade and agricultural policy may be on the horizon.

Corn

Following a two-year decline in planted acres, Georgia corn growers increased the acreage of corn in 2016 to 410,000 acres, representing a 24 percent increase from 2015. This acreage surpasses the 10-year average crop by 9.2 percent. Harvested acres for 2016 are projected to total 365,000, a 28 percent increase over 2015. The average yield is also projected higher, back to 2013 levels of 175 bushels per acre, which is about 15 percent higher than the 10-year average. Thus, total production in Georgia in 2016 is projected to increase by 31 percent to 63.88 million bushels. This would be the second-



highest annual production in Georgia, behind the record high 81 million bushels in 2013.

Total U.S. corn production is also projected up in 2016 to 15.2 billion bushels, an increase of 12 percent from 2015. The increase in production was a result of more planted and harvested acres (projected up about 7.4 percent) and increased yields (projected up about 4 percent). This projection represents record highs for the U.S. in both yield and production. Ending stocks of corn are also projected to be uncharacteristically high at 2.4 billion bushels, representing the highest level since 1987-1988.

The major export destinations for U.S. corn in recent years has been Japan and Mexico. This trend has continued in 2016, including increases to both countries in September compared to the same month in prior years. With respect to global production, significant growth has occurred over the past decade in Brazil. Brazil has become a major producer and exporter, becoming the largest U.S. competitor in the global corn market. However, the severe drought in Brazil in 2016 led to large drops

in production, providing opportunities for the U.S. to find outlets for a record crop.

Total corn use in the U.S. for the marketing year ending Aug. 31, 2016, totaled 13.6 billion bushels. This included food, seed and industrial use of 6.6 billion bushels; feed and residual use of 5.1 billion bushels; and exports of 1.9 billion bushels. For the 2016-2017 marketing year, projections are for increases in all uses, although the record level of projection is also expected to result in increases in ending stocks come the end of the marketing year in August 2017.

As a result of the strong production and projections of increased stocks, total U.S. farm prices have fallen to \$3.22 in September, but are projected to rebound slightly to the \$3.60 to \$3.70 range toward the end of the current marketing year. The last time corn prices have been this low was in 2007. In Georgia, the forecasted prices for corn during the harvest of 2017 are expected to be in the range of \$4.07 to \$4.22.

Wheat

Planted acres for wheat in Georgia dropped again in 2016 to 180,000 acres, while harvested acres dropped 24 percent to 110,000 acres. The crop was far below the 10-year average crop of 300,000 acres planted and 226,200 acres harvested. While the average yield increased 3 bushels per acre from the prior year to 46 bushels per acre, this too was below the 10-year average of 49 bushels per acre. Thus, total production in Georgia in 2016 dropped by 18.8 percent to 5.06 million bushels. This level of production represents a 76.6 percent decrease from the recent high in 2013 and a 55.1 percent decline from 2014.

Soft red winter wheat production in the U.S. was down due to a decrease in plantings from 8.48 million for the 2014-2015 marketing year to 7.09 million in the 2015-2016 marketing year. For 2016-2017, the soft red winter wheat production is projected to decrease by 13.8 million bushels to 345

million bushels, well below hard red winter wheat and down to 16 percent of all wheat. Total winter wheat acreage is estimated to be down 3.5 million acres to 36.1 million planted acres in 2016. However, due to record yields of 55.3 bushels per acre in 2016, production of all winter wheat is projected to increase by 21.6 percent to 1.7 billion bushels.

Total U.S. wheat production increased in 2016, with much better yields than 2015. Total supply has been increasing with production outpacing consumption, resulting in a buildup of stocks. Total production of all U.S. wheat for 2015-2016 is up 12 percent to 2.3 billion bushels despite planted acreage contracting by 4.85 million acres to 50.1 million acres, and harvested acres decreasing by 3.4 million acres to 43.9 million acres. The increase in production is a result of record yields of 52.6 bushels per acre, which is 20 percent higher than the previous 10-year average yield of 43.82 bushels per acre.

Record global wheat production continues to grow, with a production estimate of 744.8 million tons for 2016-2017, an increase of 10 million tons from the record set in 2015-2016. Driving the increases in global wheat production are strong outputs in India, Kazakhstan, Australia, Brazil and Canada. The European Union, however, has seen significant crop damage from excessive precipitation, and it's predicted to result in a large decline in production for the year. China is also expected to have a decrease in wheat production from last year.

Total use of all U.S. wheat was down again in 2015-2016 to 1.936 million bushels. Projections for 2016-2017 indicate a 19.7 percent increase to 2.317 million bushels, with all major use categories expected to increase. Most relevant to Georgia, the total use of soft red winter wheat is projected to be 384 million bushels in 2016-2017. This represents a 2.5 percent increase from the 375 million bushels in 2015-2016. The increase is attributed to a 17.9 percent increase in feed and residual use along with a 10.7 percent increase in seed use. Food use is projected to increase only 1.3 percent,

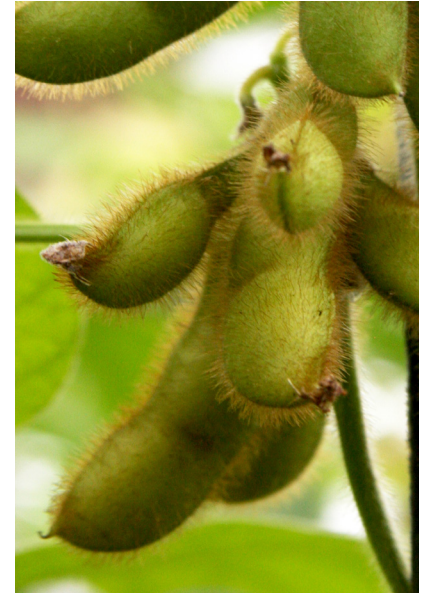
while exports are expected to decrease 8.3 percent. The percentage breakdown of major U.S. soft red winter wheat use includes food use (40.4 percent), exports (28.6 percent), feed and residual use (27.3 percent) and seed use (3.6 percent).

Prices for all wheat in the U.S. have been on a steady decline in recent years, with the marketing year annual price in 2015-2016 averaging \$4.89 per bushel. Since the beginning of the 2016-2017 marketing year, the price of all wheat has continued to decline, with the September 2016 price at \$3.49 per bushel. The last time prices were this low was 2005-2006. Corn prices have started to increase slightly, resulting in a reduction in the wheat-to-corn price ratio. A lower relative wheat price increases the competitiveness for grain use in feed rations. Georgia prices are forecast for 2017 to range from \$4 to \$4.27 per bushel.

Soybeans

In 2016, Georgia producers of soybeans planted 265,000 acres, an 18.5 percent decrease from 2015 and 7.2 percent lower than the prior 10-year average. Of the planted acres, it's projected that 96.2 percent are to be harvested for a total of 255,000 acres. This projection is a 17.7 percent decrease from 2015 and 6 percent less than the prior 10-year average. Yields are also back down after three consecutive years at or above 40 bushels per acre. Yields for 2015 set a Georgia record at 43 bushels per acre, but 2016 yields are down 18.6 percent to 35 bushels per acre. The 2016 yield is closer to the prior 10-year average of 33 bushels per acre. Given the decreasing crop and yield, total production for 2016 is forecast to be down 33 percent from 2015, to a total of 8.9 million bushels.

While the situation in Georgia is one of lower production, the opposite is true for the U.S. as a whole. Soybean acres planted in 2016 totaled 83.7 million, an increase of 1.3 percent from 2015. Total acres harvested are projected to increase 1.6 percent to 83 million acres. Yields in the U.S. are also projected to be up 9.4 percent from 2015 to a record 52.5 bushels per acre. Driving these gains in yield are record highs in Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan,



Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota and Wisconsin. All factors combined, the soybean crop is poised for a record harvest across the U.S. for a total of 4.4 billion bushels.

All uses of soybeans are projected to increase in the 2016-2017 marketing year. Crush is forecast at 1.93 billion bushels for the U.S., up 2.3 percent. Seed and residual use is forecast up 5.8 percent to 128 million bushels, while exports are forecast up 5.9 percent to 2.05 billion bushels. While total use of soybeans is projected higher, the record production is forecast to increase marketing year ending stocks 144 percent over prior year levels. The forecast ending stock on Aug. 31, 2017, is 480 million bushels. The last time ending stocks have been this high was in 2007.

Soybean prices in the U.S. dropped to \$8.51 in February 2016. The last time prices were this low was in 2007. By midyear 2016, prices rebounded to \$10.20, but dropped again in September to \$9.43. Futures prices through the rest of the marketing year indicate an uptick back to around \$10.20, however, those increases are not expected to continue or hold at that level in late 2017. Prices in Georgia during the 2017 harvest are forecast to be between \$9.40 and \$9.62.

Sources: Various publications and Quick Stats application from the U.S. Department of Agriculture. 2017 price projections by University of Georgia Assistant Professor and Extension Specialist Adam N. Rabinowitz.

Beef

By Levi Russell

There was significant hope for a recovery of calf and feeder prices in 2016, or at the least, a moderation in the price decline. While the price decline did slow from the dramatic fall in late 2015, there was not much of a recovery. At the feedlot level, relatively low feed prices and a scarcity of calves resulted in very heavy finished weights in 2015. Feedlot operators' unwillingness to sell into a price decline created a backlog that sent feeder prices plummeting at the end of 2015. The feedlot backlog began to clear in 2016, leading the way for an eventual price uptick late in the year. The price increase in late 2016 is likely to signal a turnaround in calf prices going into 2017 as herd expansion slows.

Heifer retention skyrocketed from 5.5 million head in 2014 to 6.1 million head in 2015. This increase likely helped to put downward pressure on steer calf and feeder prices in 2015. A more modest increase to 6.3 million head is likely by the end of 2016. The import/export picture improved in 2016 as imports fell dramatically from 2015 while exports rose. However, imports are still below the previous five-year average level, indicating that there is still room on the demand side to soak up the larger beef supplies that will come between 2017 and 2019 as a result of herd expansion from 2014 to 2016.



The result of these factors is dramatically lower profitability in Georgia and across the U.S. for cow-calf producers in 2016. Forecasts for 2016 cow-calf profitability nationwide and for larger operations in Georgia indicate that herd expansion will have continued this year, as expansions typically don't stop without revenues falling below cash cost.

Demand-side outlook

While higher quality cuts remain somewhat elevated above their longer-term averages, beef prices in general have moved much closer to their long-term averages in late 2015 and during 2016. The extremely high prices paid for beef at the retail level in 2014 and 2015 are indications of a shift in consumer demand for beef somewhat reminiscent of the 2003 to 2005 timeframe. This indicates that, over the long term, consumers' preference for beef will likely put a relatively high floor on calf prices going forward.

Competing meats and the failure to expand U.S. export markets are bad news for calf and feeder prices going into 2017. The hog and poultry industries have ramped up production on low feed costs, putting downward pressure not only on the prices of their own products, but on beef as well. From 2015 to 2016, pork and broiler production increased 1.7 percent and 1.6 percent, respectively. Production is expected to increase by 2.1 percent in both industries from 2016 to 2017. Since beef production is also expected to increase in coming years – by as much as 4.5 percent in 2017 – these factors will weigh on retail prices. The failure of the Trans-Pacific Partnership, which would have dramatically expanded export markets for beef along the Pacific Rim, is certainly a missed opportunity for the U.S. beef industry. That said, expect beef exports to move back to their long-term average in 2017 and for imports to continue to decline.

Table 1. Beef outlook summary.

	2015	Percent Change	2016	Percent Change	2017
Beef Production (Million lb)					
I	5,701	4.8%	5,972	5.4%	6,296
II	5,873	5.6%	6,204	5.4%	6,537
III	6,085	6.6%	6,485	2.9%	6,670
IV	6,146	3.2%	6,345	4.6%	6,639
Year	23,805	5.0%	25,005	4.5%	26,142
Net Beef Imports (Million lb)					
Yearly	1,106	-55.2%	495	-93.9%	30
Price (Cost per hundredweight (cwt) for 500- to 600-lb steers, Georgia auction markets)					
I	\$259.82	-30.5%	\$180.51	-34.6%	\$118.00
II	\$261.11	-46.1%	\$140.75	-10.5%	\$126.00
III	\$226.52	-43.5%	\$128.03	-6.3%	\$120.00
IV	\$181.94	-36.2%	\$116.00	0.9%	\$117.00
Year	\$232.35	-39.2%	\$141.32	-14.9%	\$120.25

At the feedlot level, placements on feed are up year-over-year, indicating that 2017 should be a better marketing year for cow-calf producers than 2016. Bin-buster corn and soybean crops in the Midwest will keep feed costs relatively low at the feedlot level, which will likely help support cow-calf prices throughout 2017. This will provide marketing opportunities for producers into 2017 and will likely provide some support for stocker margins going into the fall and winter of 2017.

Supply-side outlook

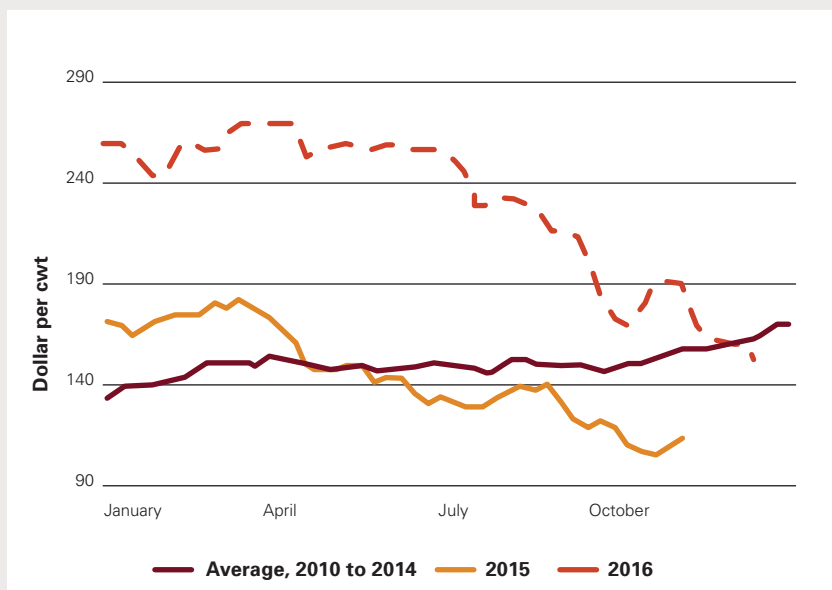
While herd expansion was strong in 2014 and 2015, 2016 will likely see only a modest increase in the nation's herd. Profitability is much lower in 2016 and forecasted profitability in 2017 is negative. This indicates that heifer retention nationwide will be very minor or will cease entirely in 2017. Heifer slaughter, which was very low in 2015 relative to the long-term average, has picked up during 2016 and is expected to be in line with the long-term average in 2017. The combination of very little growth in heifer retention and increasing heifer slaughter implies that herd expansion will

be slight or will cease in 2017. This will help foster the turnaround in calf and feeder prices in late 2016.

Prices fell 39.2 percent from 2015 to 2016 and will move into a more seasonal pattern in 2017. Although this was expected to happen during 2016, the nonseasonal price rally in November 2016 indicates that the market has turned the corner. Due to the price decline in 2016, prices in the first half of 2017 will be much lower on a year-over-year basis, but prices in the second quarter of 2017 are expected to be higher than in the first quarter. By the end of the year, the recovery should be evident on a year-over-year basis, with fourth quarter 2017 prices being roughly equal to fourth quarter 2016 prices.

The greatest challenge for many Georgia producers going into 2017 is the drought, which is most severe in the northern and western parts of the state. The prices of hay and feed rose in 2016 and the lack of rain has reduced the amount of winter forage available to producers. The unfortunate result is that many Georgia producers will likely reduce their herd size during 2017.

Figure 1. Medium- and large-frame No. 1 and No. 2 steer calf prices
(500 to 600 lb, Georgia, weekly).



Source: U.S. Department of Agriculture Agricultural Marketing Service, compiled by Livestock Marketing Information Center.

Pork

By Levi Russell

The year 2016 has been a year of record inventory, production in excess of packer capacity, strong profits and impending losses. The first half of the year saw relatively strong prices mostly due to strong export demand from China and Hong Kong. Producers were willing to forego the use of ractopamine to ensure that adequate supplies were available to ship to China. Many remember the support given to prices in 2011 when exports to China surged and, in the face of increased production, prices were strong through the summer.

Although many expected strong production in 2016, the dramatic increase in slaughter in September that has continued through October and November coincided with a fall in prices that pushed producer margins into the red late in the year. Increased production came in the form of more sows farrowing and an increase in pigs per litter, and production resulted in a record inventory of 70.851 million head as of Sept. 1. Low feed costs have been a primary driver of inventory expansion. Low feed prices due to bin-buster corn and soybean crops are good news for producers and will play a role in tempering losses going into 2017. Demand and supply factors for 2017 will be similar to 2016 with a few key differences.



Demand-side outlook

Export demand has been and will continue to be an important part of producer profitability going into 2017. China will be an especially important market for pork, and the recent revision to the U.S. Department of Agriculture "World Agricultural Supply and Demand Estimates Report" is good news for U.S. producers on the export front. Projected pork exports increased 40 million pounds to an estimated 5.440 billion pounds for 2017. This higher export projection implies an increase of 5 percent above the 2016 estimate of 5.179 billion pounds. Lower U.S. pork prices will certainly help exports, but strength in the dollar could put a damper on exports, as a strong dollar makes U.S. products more expensive abroad. Financial markets are expecting an interest rate hike in the near future, which, given the current strength of the dollar, could jeopardize the forecasted

increase in exports. Given the expectations for strong production in 2017, exports will be more important than usual, implying that a stronger dollar presents a unique risk to the industry.

Thanks to lower pork prices, domestic demand is also expected to improve in 2017. Domestic consumption increased 0.5 percent from 15.584 billion pounds in 2015 to 15.674 billion pounds in 2016 and is expected to increase 2.2 percent to 16.021 billion pounds in 2017. The biggest risks facing domestic consumption are prices of competing meats. To the extent that consumers are willing to substitute poultry or beef for pork, low prices for those meats tend to depress the price of pork. Given the forecasts of increased production in the coming years for chicken and beef, we will likely see low prices in 2017 for those meats. This implies that pork producers will lean heavily on export markets to buoy prices.

Table 1. Pork outlook summary.

	2015	Percent Change	2016	Percent Change	2017
Pork Production (Million lb)					
I	6,167	1.1%	6,235	2.5%	6,389
II	5,930	0.6%	5,967	1.8%	6,072
III	5,963	2.4%	6,104	1.0%	6,167
IV	6,462	2.8%	6,642	3.2%	6,856
Year	24,521	1.7%	24,948	2.1%	25,484
Pork Exports (Million lb)					
Yearly	5,009	3.4%	5,179	5.0%	5,440
Price (Dollars per cwt, national base 51% to 52% lean, live equivalent)					
I	\$48.47	-7.9%	\$44.63	-17.1%	\$37.00
II	\$53.20	1.0%	\$53.71	-23.7%	\$41.00
III	\$54.59	-9.8%	\$49.26	-8.6%	\$45.00
IV	\$48.00	-27.1%	\$35.00	5.7%	\$37.00
Year	\$50.82	-10.2%	\$45.65	-12.4%	\$40.00

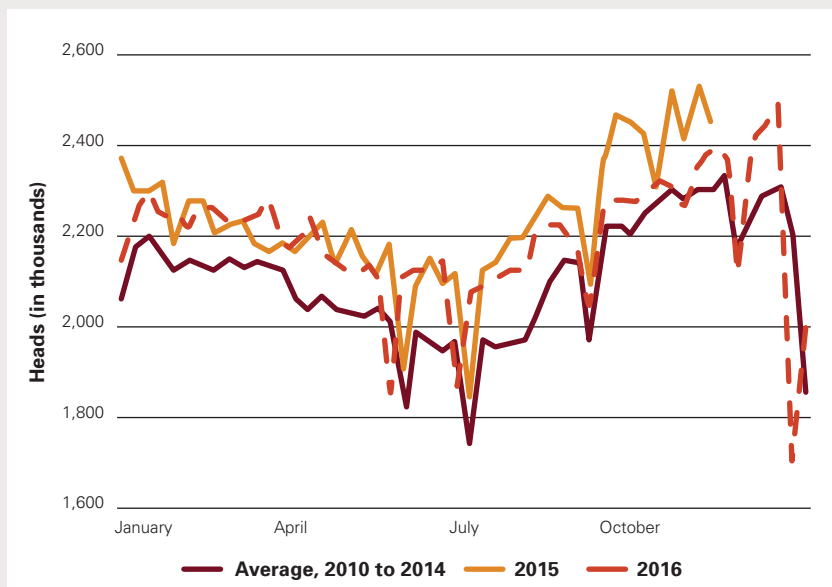
Supply-side outlook

Low feed costs and high prices in the first half of 2016 led to increased production that has resulted in a record-high hog and pig inventory in the U.S. The price decline in September coincided with a sharp uptick in production that tested packer capacity. Packer capacity in 2016 is estimated at 2.496 million head per week, which is the level at which the industry can operate without incurring significant costs to process additional hogs. Concerns about packer capacity were realized as federally inspected slaughter exceeded 2.5 million head per week for two weeks during the month of October. Pork production increased 1.7 percent from 24.521 billion pounds in 2015 to 24.948 billion pounds in 2016 and is expected to increase another 2.1 percent in 2017 to 25.484 billion pounds. Given this expected increase in production, the forecasted packer capacity increase to 2.615 million head per week is welcome news.

Although producer profits were strong in the first half of 2016, losses later in the year, combined with expected losses in much of 2017, will help to slow expansion.

While total inventory increased 2.4 percent from 2015 to 2016, the number of hogs kept for breeding increased only 0.5 percent nationwide and actually declined in some of the major production areas. Given the size of corn and soybean crops for this year, it's unlikely that feed costs will increase significantly in 2017. However, forecasted year-over-year price declines of 17.1 percent and 23.7 percent in the first and second quarters of 2017 will likely mean lower profits in at least the first half of 2017. Prices are expected to recover on a year-over-year basis in the fourth quarter due to increased packer competition, potentially creating an opportunity for profitability.

Figure 1. Hog slaughter (Federally inspected, weekly).



Data sources: U.S. Department of Agriculture Agricultural Marketing Service and National Agricultural Statistics Service, and Livestock Marketing Information Center.

Poultry

By Levi Russell and John McKissick

The poultry industry's 2016 story has largely been one of moderating production growth, disappointing exports and, in some cases, domestic demand concern. The result has been reduced profit margins, cushioned only by falling feed cost. Barring significant production adjustments, margins will remain tight in 2017 for broiler producers and are most dependent on feed cost remaining low.

Supply-side broiler outlook

Broiler producers pumped up production growth by close to 4 percent in 2015 in response to favorable profit margins. Bird slaughter continued to track from 2015 throughout the first half of 2016 and was expected to continue through 2016's last quarter. The year's first-half production was almost 3 percent higher than in 2015, as more weight was produced per bird harvested. As a result, broiler prices fell from 2015's first-half price of \$101 per hundredweight (cwt) to an \$89-per-cwt average during 2016's first six months.

As of late summer and fall, broiler production has been running slightly below that of 2015. Total broiler production appeared to be down close to 1 percent during the summer quarter. Since bird slaughter was close to that of 2015, the decline in slaughter came from an unusual decline in bird weights. The July-to-September-2016 quarterly production decline is the first year-over-year production drop since the summer of 2012. With production growth reversed, broiler prices stabilized close to 2015's level.

The unprecedented decline in bird slaughter weights is significant in that the industry has gained efficiencies in the past by processing ever-heavier birds. In fact, the slaughter weight decline is the first quarterly decline from the previous year since 2011, and there have only been four such declines in the last 17 years. Declining bird weights are thought to be, at least in part, an industry reaction to a white meat quality

issue called "woody breast." Woody breast is commonly associated with heavier-than-average birds. Breast prices have been the most depressed of all the broiler cuts, with prices well below 2015's levels through late summer, with wholesale breast trading close to \$1 per pound. By late year, breast prices were only tracking 2015's depressed price.

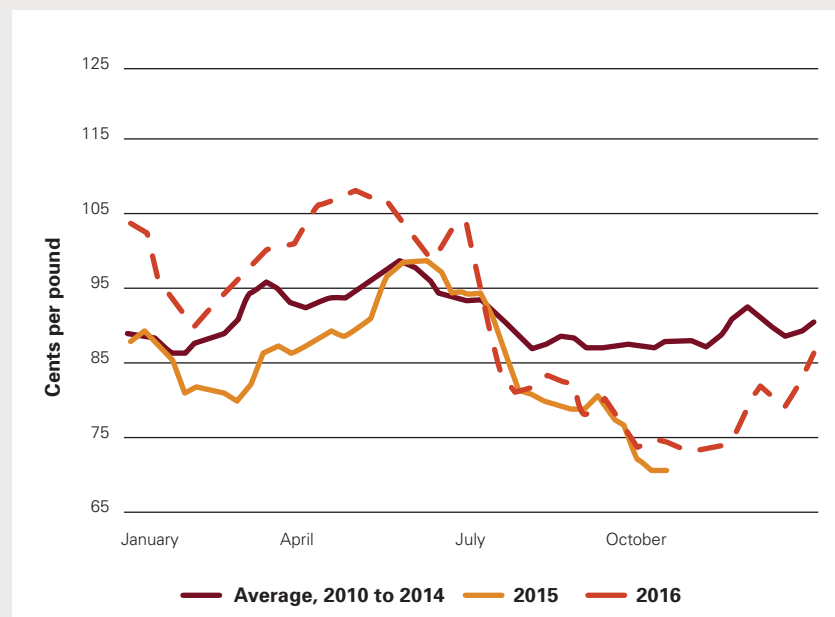
Whether bird weights were reduced because of white meat demand, overproduction or other issues, bird weights will be the factor in deterring overall production for both the remainder of 2016 and the first half of 2017. It would seem logical that producers will keep the number of birds produced close to or slightly even above the previous year's level, as fall and early winter are periods of strong wing demand, and as leg prices recover with improved export demand from late 2015's highly pathogenic avian influenza (HPAI)-influenced trough. Late 2016 total production is forecast to be about

level with 2015's production. Production in 2017 will likely only grow marginally above 2016's as producers respond to shrinking profit margins.

Demand-side broiler outlook

Competing meat supplies and prices have been another factor in the erosion of broiler prices. All meat protein producers face similar circumstances. After the record profit year of 2014, total U.S. meat production continues to expand. Total meat production is expected to top the 100-billion-pound mark in 2017, with 3 percent growth rates in both 2016 and 2017. Total meat exports will expand given the U.S.'s more competitive meat price in international markets, but not at a rate sufficient to limit growing domestic per person supplies. Whole broiler prices will find tough trading against this sort of meat mountain as white meat domestic demand will be particularly impacted.

Figure 1. Broiler Prices (National composite, weekly).



Data sources: U.S. Department of Agriculture Agricultural Marketing Service and Livestock Marketing Information Center.

U.S. broiler exports in 2016 will end the year about 3 to 4 percent higher than in 2015, the first year-over-year growth in two years. 2015 exports were impacted by HPAI-induced trade suspensions. Even though some of the trade barriers have been eased, regaining the levels that U.S. exports previously experienced may prove difficult. From 2008 to 2014, broiler exports consistently accounted for 18 to 19 percent of the U.S. market. Since 2015, the market share of U.S. production exported has fallen to about 16 percent. Stiff South American competition, continuing trade tensions with our largest U.S. customers in Russia and China, as well as the strong U.S. dollar value against world currencies have worked against expanding the export share of U.S. production. Without the relief valve of expanding export markets, producers must market more meat to the domestic market as production increases.

Since dark meat parts have been the source of most U.S. export interest, this part of the market has been most impacted. At points during the past year, dark meat was pressured to salvage value levels below 20 cents per pound. Dark meat prices have recovered and were above 2015 levels by the last part of 2016 as exports recovered following trade suspensions. The prospects for robust export growth in 2017 seem dim as tensions grow among trade partners. Still, some very modest prospects for 2017 export gains are forecast, but with a high degree of forecast error, both positive and negative. Exports can be jolted even further by unforeseen world and domestic events.

Per capita domestic broiler meat supplies (production net of exports) for 2016 increased by about 1 pound per person to almost 90 pounds. For 2017, producers will have to market about another pound per person at home. Domestic supplies at almost 91 pounds per person will challenge broiler marketers to find profitable product outlets.

The forecast levels of production combined with demand should result in 2017's implied whole bird values being about 2 to 3 percent lower than 2016's. After suffering price declines of 14 and 7 percent the previous two years, producers will

continue to face hard choices on production levels. Positive price-cost margins will only be found if feed prices remain low or fall further. Prices for 2017 will average only in the lower \$80s if the forecast levels hold. The industry required an almost 5 percent production cut to improve prices. 2017 is different in that feed costs are lower.

Egg industry outlook

The egg markets in 2016 were the poster child for the old market adage: "The cure for high price is high price." The wholesale change in the market situation, however, caught everyone by surprise. Egg producers were severely impacted in 2015 by HPAI-induced table egg flock losses. Import bans were placed on U.S. eggs and our importers searched for alternative suppliers, often offering multiyear contracts to secure eggs. Large domestic users, such as bakeries, that could find alternative ingredients or recipes to use fewer eggs did so, but many, like scratch bakers, could not. Meanwhile, consumers who were accustomed to their two eggs, bacon and coffee each morning were not significantly impacted by higher prices. Egg markets reached record levels. By August of 2015, wholesale egg prices reached around \$3 per dozen.

Once producers were able to restock flocks, it was with younger, more productive layers. By midyear 2016, layer flocks were

once again on the rise and the number of eggs per 100 layers reached a record 80 eggs. Prices cratered, with egg prices off more than \$1.50 per dozen as importers were slow to return to U.S. eggs. Late year 2016 leg market prices have improved some, with exports recovering to their highest level since March of 2015. Mexico has accounted for 35 percent of total exports. October to December 2016 prices are likely to show improvement over midyear prices, but will still fall short of 2015's fourth quarter by \$0.90 per dozen. The yearly average 2016 price change will still be a record at about 53 percent of 2015's yearly average. 2016's average egg price will be the lowest since 2006 and the first under \$1 per dozen during the same time period.

The shocking turnaround in egg markets obviously provides great uncertainty for producers in 2017. Despite low feed cost, producers in general are in the red for the first time in many years. Some continued improvement in exports is expected in 2017. If producers are able to hold production at or below a 2 percent growth rate, domestic supplies will be reduced and prices should continue to improve. However, a yearly price once again under the magical \$1-per-dozen levels will provide the industry little real relief from the storm of the last two years.

Table 1. Broiler outlook summary.

Year	2013	2014	2015	*2016	*2017
Broiler production (Million lb)	37,830 +2.1%	38,565 +1.9%	40,048 +3.9%	40,742 +1.7%	41,650 +2.2%
Exports (Million lb)	7,345 +1.0%	7,298 -0.6%	6,321 -13.4%	6,565 +3.9%	6,895 +5.0%
Per capita supplies (Lb)	81.8 +1.8%	83.3 +1.8%	88.9 +6.7%	89.9 +1.1%	90.9 +1.1%
12-city price (Cents/lb)	\$99.70 +15.1%	\$104.90 +5.2%	\$90.50 -13.7%	\$83.80 -7.4%	\$81.50 -2.7%

*Forecast

Source: U.S. Department of Agriculture and the University of Georgia.

Dairy

By Tommie Shepherd

The big picture: Global markets will continue to impact the U.S. dairy industry

The most consistent thing about the dairy industry over the past decade has been change. Change in the areas of domestic supply and demand, global markets and government support programs has resulted in unprecedented price volatility for U.S. dairy farmers at a time when they are increasingly exposed to risks posed by changes in global markets. As noted in prior editions of this annual outlook, the U.S. dairy industry continues to follow two- to three-year cycles of record high milk prices, which encourages increased milk production, which, in turn, leads to a collapse in prices and declining production, which completes the cycle by pushing prices to new record highs. It is, therefore, difficult to discuss the dairy outlook for a single year without considering the preceding years of that production cycle.

During 2013 and 2014, U.S. dairy markets witnessed a series of milk and dairy ingredient price increases that were driven by international demand from countries like Russia and China. At the same time, production in major dairy-exporting regions such as Australia and New Zealand declined significantly due to severe drought conditions. Consequently, U.S. dairy farmers benefited from record high milk prices during 2013 and 2014. By 2015, the situation reversed as China's purchases slowed and Russia embargoed many food imports, including dairy products, while production rebounded in Australia, New Zealand and parts of the European Union. This global increase in supply, coupled with a decrease in demand and a strengthening U.S. dollar that made exports more expensive and thus less competitive, resulted in growing stocks of U.S. dairy products and a severe decline in farm milk prices as U.S. prices moved in step with declining world prices.

The average price for all milk produced in the U.S. (all-milk price) reached a new record high of \$24 per hundred pounds (cwt) in 2014 before falling to \$17 in 2015, a decline of nearly 30 percent.

The market conditions that precipitated this sharp decline prevailed throughout most of 2016, forcing the all-milk price down to around \$16, approximately 33 percent below the 2014 peak. By the end of 2016, an upswing of the familiar historical price cycle had begun to reassert itself. Worldwide, milk production showed signs of slowing due to low international milk prices, weather issues in the major exporting countries of Australia and New Zealand, and implementation of a voluntary milk supply management program in the European Union. China started to show some indication of re-entering the world market as a buyer after working down the stock of dairy products that it accumulated during the two previous low-price years. Although Russia's embargo on U.S. food products is expected to continue for some time to come, Mexico and Canada continue to be increasingly strong buyers of U.S. dairy ingredients, such as dried milk powder used in manufacturing. These factors, taken together, signal the beginning of much-needed price recovery for U.S. dairy farmers.

How will the U.S. fare in 2017?

As noted above, U.S. milk prices are increasingly influenced by global market conditions as the industry becomes more and more reliant on export markets to absorb increasing domestic production. U.S. consumption of fluid milk has been flat for more than a decade. Milk that is not consumed in fluid form is processed into manufactured dairy products that can be stored and sold at some future date. When exports decline, stocks of such products build and place downward pressure on farm milk prices. Fortunately, domestic demand

for cheese, butter and, more recently, yogurt, has increased over the past decade, helping to reduce stock buildup and support farm level prices, a trend that shows no signs of abating. A continued strong domestic demand for these products serves to offset some of the shock of reduced exports.

U.S. exports of manufactured dairy products declined nearly 26 percent from 2014 to 2015 and are projected to decline by an additional 10 to 15 percent during 2016. This situation has resulted in significant increases in stocks of manufactured dairy products such as cheese and butter. Fortunately for U.S. dairy farmers, strong domestic consumption has prevented stocks from increasing to even higher levels and depressing farm milk prices even further. Milk price volatility is somewhat one-sided, with prices tending to fall much faster than they rise. The result is that production responses chase price changes downward with a significant lag. Producers ramp up to produce more milk when prices are high, as in 2013 to 2014, but are slower to cut back when prices fall, as in 2015. In the U.S., record high milk prices grew production by 2.4 percent between 2013 and 2014 before it finally began to respond to lower prices during the second half of 2015. Production grew by an anemic 1.3 percent between 2014 and 2015, and production is expected to grow by no more than 1.7 percent during 2016. Cow numbers increased only slightly in 2016, with most of the projected milk supply growth attributed to increasing per cow productivity.

Going into 2017, the U.S. Department of Agriculture projects milk production of 217 billion pounds, representing a 2.1 percent increase over 2016. This estimate is based on 9.37 million milk cows, an increase of less than 1 percent over 2016, with production gains again primarily attributable to increasing cow productivity. The resulting all-milk price, an industry benchmark, is projected to fall in the range

of \$16.30 to \$17.20 per hundred pounds of milk, compared to about \$16 for 2016. Butter inventories going into 2017 are about 50 percent higher than one-year-earlier levels, while cheese inventories are only 5 percent higher. Consequently, the milk price outlook is cautiously optimistic of a modest recovery beginning around the second quarter of 2017 and building momentum throughout the remainder of the year. Milk production increases, which slowed to around 1.7 percent in 2016, are expected to grow by about 2.1 percent in 2017 based on expectations of a price recovery.

Price increases during the first quarter of 2017 may be a bit more modest than futures market prices seemed to suggest in late 2016 for Class III (cheese) milk and Class IV (butter) milk, given the quantities of cheese and butter stocks available to the market. Actual Class III prices may only reach the mid-\$15 range during the first quarter of 2017 before rising into the low \$16 range by the second quarter and eventually breaking the \$17 barrier by the fourth quarter of 2017. Dairy producers' bottom-line profitability in 2017 should benefit from continued favorable feed prices based on corn and soybean prices, which are expected to remain low relative to milk prices.

What is in store for Georgia producers in 2017?

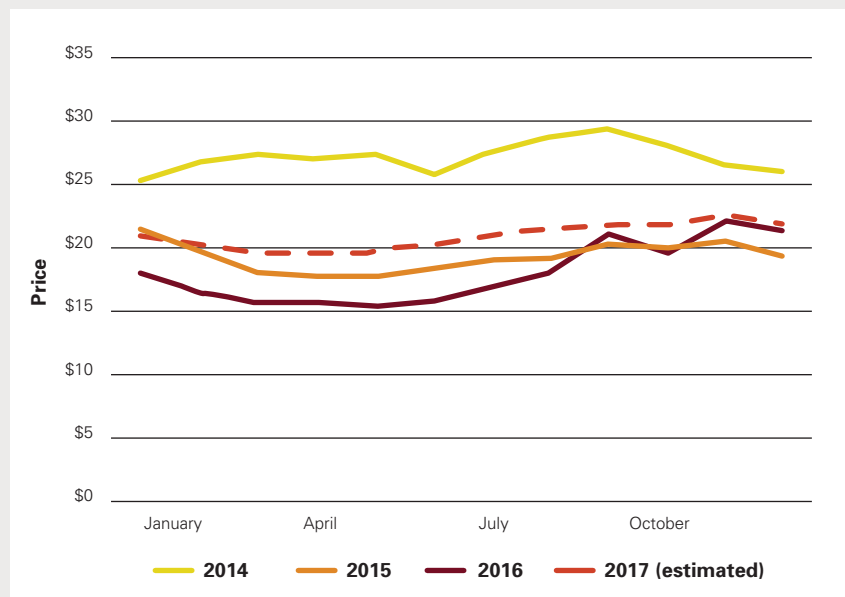
Georgia continues to be one of the strongest milk-producing states in the Southeast, given its unique geographic access to urban population centers in the southeastern U.S., including the important Atlanta and Florida dairy markets. Georgia dairy farms generated approximately \$450 million in farm gate value in 2014 thanks to a combination of record high milk prices and production increases of around 7 percent over the prior year. Total farm gate value fell by about 18 percent, to around \$368 million, in 2015 due to the nationwide collapse in milk prices and by an additional 3 percent, to about \$358 million, in 2016. State production remained strong in spite of this price decline, continuing to expand at a more modest rate of around 5 percent. Georgia production will likely continue to grow at a steady pace in 2017 as dairy

market conditions improve. The state will begin 2017 with approximately 200 dairies, which are collectively expected to produce about 1.9 billion pounds of milk during the year. The number of dairies in the state has declined substantially over the past decade, from 394 at the beginning of 2001 to around 200 by the end of 2016. Losses have been primarily among smaller dairies milking 200 or fewer cows, while the number of dairies milking 750 or more cows has increased as the remaining farms grow larger. Following a period of steadily declining milk production between 2000 and 2010, production rebounded to 1.44 billion pounds in 2011 and increased to 1.8 billion pounds by 2015 as producers responded to a surge in milk prices. Georgia's dairy herd declined from 97,000 cows in 1996 to 77,000 in 2010 but recovered

to 85,000 by 2016. Milk production has also received a boost through efficiency gains, with milk per cow increasing by nearly 20 percent since 2010, from 17,500 pounds per cow per year to around 22,000 pounds per cow per year today.

Georgia is located in the Southeast Federal Milk Marketing Order. As a part of the Federal Milk Marketing Order system, milk prices in Georgia are tied to national prices for manufactured dairy products. Milk prices in Georgia, like prices nationwide, are expected to improve modestly from 2016 levels during the first half of the year before showing some additional recovery during the second half. Georgia dairy farmers received an average of about \$18 per hundred pounds (cwt) in 2016 and can expect about \$20 to \$21 per cwt in 2017.

Figure 1. Georgia mailbox milk price: Price per hundredweight (cwt), 2014 to 2017.



Green Industry

By Ben Campbell

Georgia's green industry, which consists of nursery, greenhouse, floriculture and turf production, as well as logistics, retail and a host of other operation types, varies in both size and location throughout the state. As can be seen in Figure 1, the largest concentration of firms is around the Atlanta area, which is to be expected given the population base in and around Atlanta. The Atlanta area also has higher median incomes compared to Georgia as a whole. Increased population and income provide advantages, however, the increased number of firms contributes to intense competition within the area. South Georgia has less firm density, but demand in these areas is not as concentrated as it is around Atlanta.

According to the Center for Agribusiness and Economic Development, the green industry had a farm gate value of \$608 million in 2014. With respect to economic impact, the green industry produces around a three-to-one total impact for every dollar spent and approximately twenty jobs for every million dollars in sales. Given these numbers, the green industry is an important contributor to the Georgia economy.



However, the 2008 recession gutted Georgia's green industry: its 2014 farm gate value was down by 31 percent compared to 2007 (pre-recession) values. At the height of the economic boom in 2007, the green industry was ranked behind only broilers in farm gate value, making up 6.7 percent of the total Georgia farm gate. In 2014, the green industry represented 4.3 percent of the total farm gate value within Georgia, ranking fifth among all commodities behind only broilers, beef, cotton and eggs. Furthermore, the recession and slow growth coming out of the recession has hindered growth and profitability. Notably, U.S. Department of Agriculture numbers indicate that there were 7 percent fewer green industry firms in Georgia in 2012 compared to 2007. As can be seen in Figure 2, southeast Georgia had the highest loss of firms, and counties in and around Atlanta had mixed results.

The recovery of Georgia's green industry is dependent on a number of factors (e.g., economic growth, weather, external events) that play a critical role in industry growth. State economic growth and housing starts are two areas that can be looked at to provide an indication of how the industry will trend in 2017. Housing starts throughout the U.S. are projected to increase by 7 percent from quarter two 2016 to quarter two 2017, according to the U.S. Census Bureau. Further, there is a projected 2 percent increase in U.S. gross domestic product and an expected 3 to 5 percent increase in Georgia state product in 2017 (Kiplinger; usgovernmentspending.com).

Weather is also an important factor of green industry product demand. National Weather Service projections for early 2017 indicate normal temperatures and precipitation for most of Georgia. However, weather at inopportune times (like weekends) could be detrimental to product demand. There is no way to forecast when rain will fall or temperatures will be warm

enough for the spring season to start, but early 2017 projections indicate favorable temperatures and precipitation that could be a driving force of demand.

Other factors that influence green industry product demand include household incomes and legislative changes. Georgia real median incomes have been stagnant over the past couple of years, with levels just now returning to those of 2010. In addition, the uncertainty that comes with any presidential election generally tempers stock market growth, which could be a negative impact to economic growth (ABC News).

In essence, there are competing forces. Optimism for the industry stems from a growing economy led by a projected increase in housing starts and normal weather during prime retail time. Potential negative factors include somewhat stagnant income and the uncertainty of a changing government. Using the green industry farm gate values from the Center for Agribusiness and Economic Development in conjunction with other data, it is anticipated that there will be small growth in the industry during 2017. An estimate would be for 1 to 2 percent industry growth, which is less than the forecasted 2017 Georgia gross state product growth rate of 3 to 5 percent.

All firms within the industry will not see growth, as continued competition from within Georgia – and from outside exports – will make less efficient firms less profitable or drive them out of business altogether. Firms that can facilitate demand by pricing competitively, taking advantage of marketing methods that directly appeal to likely consumers, or identifying a niche market (either a unique product or consumer group) will have the largest growth. Pricing competitively should be a primary goal in 2017. Firms that are able to reduce costs can raise their margins, thereby increasing their profitability. One of the leading factors that will contribute to costs is labor, especially given potential

immigration changes put forth by the new presidential administration. Firms that are proactive and able to effectively manage labor costs will see improved profitability and increased growth. With respect to marketing, firms that understand their customer base and market and advertise appropriately will increase demand for their products. Millennials are connected to handheld devices and need to be reached

with online methods, while baby boomers will respond to more traditional types of advertising. Being efficient with marketing and advertising dollars is essential. Finally, firms that can think outside the box and identify a new or unique product or find a consumer group that values something the firm is selling will position themselves for increased profitability and growth.

Many consumers continue to key in on production practices as a decision aid in the purchase decision. Key practices that will continue to be on the forefront in 2017 include neonicatoid use and genetically modified organisms (GMOs). Firms that can effectively navigate these issues while increasing their environmental friendliness will appeal to a broader group of consumers.

Figure 1. Georgia green industry firm density in 2012.

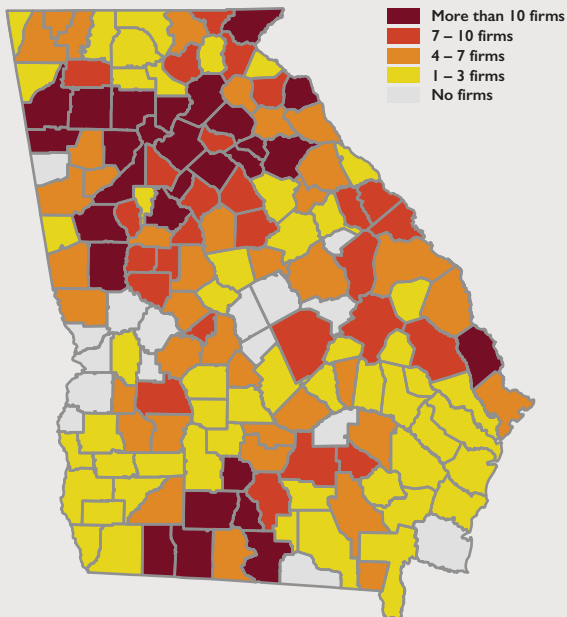
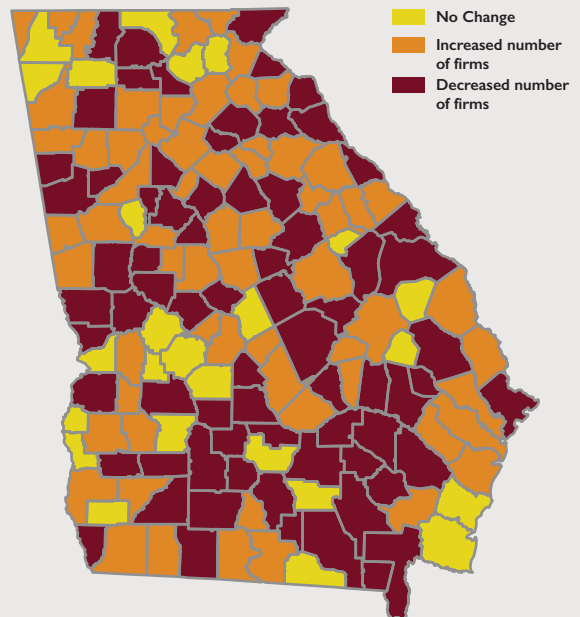


Figure 2. Georgia green industry percent change in firms by county, 2007 to 2012.



Agritourism

By Kent Wolfe

Agritourism means different things to different people, but in general, “agritourism” refers to any business activity that brings the public to a farm or rural setting in an effort to market farm-raised or farm-produced products or the enjoyment of related outdoor activities. There are a number of reasons a producer may pursue an agritourism enterprise. For instance, a producer may seek to supplement inadequate farm profits, diversify products, take advantage of underused farm resources or provide educational opportunities to the public. According to the 2012 census of agriculture, the number of farms involved in agritourism had risen by nearly 10,000 from the 23,350 farms reported in 2007. The average farm generates an estimated \$22,321 annually from its agritourism enterprise, down \$3,000 from the 2007 census.

According to research from the U.S. Travel Association, several trends support statistics showing an increase in agritourism. According to the research, tourists are traveling by car more often, taking shorter, last-minute trips and seeking to spend quality time with loved ones. All of these factors are important to agritourism destinations, which are generally ideal for speedy, local daytrips where visitors can enjoy new experiences together.



Consumers are making more thoughtful choices about travel as well as food. People are more concerned than ever about learning where and how their food is sourced. At a farm, ranch or vineyard, adults and kids can see the process firsthand, in a hands-on way. They appreciate the fresh air, the wholesome relaxation and, perhaps most importantly, the enduring memories they make while touring the heartland.

Agritourism market segments

Great generation: This generation is starting to shrink compared to younger generations. These consumers like to new things. They may travel in groups on short day trips and seek activities that provide educational and social opportunities.

Baby boomers: This segment of the population is recognized as a primary driver in many segments of the U.S. national economy, and this includes the travel industry. Folks in this generation tend to lead healthy, active lives, and as retirees, they will demand access to many different and new activities, facilities and events. This will include activities that provide quality recreation experiences and opportunities to spend time with their families.

Generation X: This generation prefers quality food, both healthful and indulgent, great atmosphere and a family-friendly experience. An overall great social experience and good financial value can add up to a winning formula to attract the generation X segment and its disposable entertainment and food dollars.

Millennials: This is the second-largest generation and is expected to surpass the baby boomer generation in the near future. They are concerned about health and they are looking to get back to the basics. Millennials are generally more concerned about what they are eating and what it does to their bodies than other cohort groups. In addition, according to research, 90 percent of new mothers are millennials, and they make purchasing



decisions differently than past generations. Millennials gravitate towards companies with “authentic” narratives that resonate with their own worldview, oftentimes bundled with social causes. In addition, they look for four characteristics in a product: authenticity, meaningfulness, uniqueness and innovation.

Single-parent families: Many single-parent families seek recreational and educational opportunities to maximize quality time with their children. This segment of the population has grown from 9 percent in 1960 to 26 percent today.

School age groups: Farms provide excellent opportunities for preschools, elementary schools, 4-H Clubs, Boy Scouts, Girl Scouts and other groups to learn about nature and agricultural processes. This segment measures approximately 73.6 million and is expected to increase to 74.1 million in 2020.

Additionally, there are three primary economic factors that will impact agritourism and nature-based tourism in Georgia in 2017.



(1) Fuel prices

As in 2016, cheaper fuel will continue to positively impact agritourism. Gasoline prices are expected to average \$2.27 per gallon in 2017, up from \$2.13 in 2016. Consumers are benefiting from low fuel prices and given that car fuel efficiency has steadily been increasing, it will be less expensive for consumers to travel to agritourism sites than it has been over the past couple of years. Lower fuel prices should have a positive effect on travel plans. Given that school field trips are important to agritourism operations, on-road diesel is expected to rise by \$0.37 in 2017, which should not negatively impact school field trips as in 2014 when on-road diesel cost \$3.83 per gallon. Gas costs in 2016 may benefit Georgia's agritourism.

(2) Tax revenue

According to the Georgia Budget and Policy Institute, the 2017 budget is expected to be 5.3 percent higher than in 2016, excluding the transportation package that was enacted in 2015. State revenues are continuing to grow, and there is a projected \$300 million in additional K-12 formula funding as well as a restoration of the austerity cuts experienced in past years, up by \$20 million dollars over 2016. This increase in funding may relieve some

financial pressure on schools, allowing them to take field trips that would benefit agritourism.

(3) Unemployment

Georgia's economy continues to grow and is expected to increase to 3.2 percent in 2017, up from 2.6 percent in 2016. The anticipated continuation of rising home prices and stock market appreciation indicates that Georgia's economy will expand in 2017. Georgia's nominal personal income will grow by 5 percent in 2017, which is up from 4.1 in 2016 and will exceed the 3.1 percent gain expected for U.S. personal income in 2017. Georgia's nonfarm employment is forecast to increase by 2.1 percent in 2017, which exceeds the 1.5 percent gain estimated for the U.S., but lower than the 2.8 percent, 2.9 percent and 2.7 percent job gains Georgia posted for 2014, 2015 or 2016, respectively.

Overall, domestic leisure travelers are still looking for escapes and places where they can spend time with family and friends. Agritourism offers a great means of generating new experiences. The improving economy and increased income, a fall in unemployment and strong tourism growth projects point to increase in agritourism visitation in 2017.

Honey Bees

By Jennifer Berry

2016 proved to be a challenging year for beekeepers across the state of Georgia. Honey yields were lower than average in most regions, except for spotty areas in the Piedmont and North sections of the state, and pest populations were on the rise. Starting off the year, the gallberry nectar flow was lower than average, with yields falling below 20 percent, with some areas experiencing a 50-percent decline. Even with the shortage, prices only rose slightly, with a pound going for roughly \$2.15. Gallberry, a medium-growing evergreen shrub indigenous to the southern coastal regions of Georgia and the Southeast, is a staple honey crop that many beekeepers rely on. Cool, rainy weather during the nectar flow along with the decrease of available gallberry (due to fire and chemical measures to control underbrush in pine timberlands) have reduced available acreage for bees to forage, thereby adding to the decrease in honey yields.

Gallberry blooms in the spring months and produces more honey than any other floral source in the state. Fortunately for beekeepers, the spring wildflower flow across the central and northern sections of the state was slightly above average. Some regions reported an increase in yields by 20 to 30 percent of what was produced in 2015. Wildflower prices remained steady, ranging from \$1.85 to \$2.00 per pound.

Over the last several years, the tupelo honey crop has consistently been well below average. Some regions of southwest Georgia have only collected a tenth of what was produced years ago. Tupelo honey comes from the tupelo tree, located in moister regions of southern Georgia. Due to the shortage in honey yields once again, prices rose significantly to \$6.50 to \$7.50 per pound.

The sourwood honey crop, on the other hand, produced average to above average amounts. The sourwood tree is located across the state, yet only produces nectar in

the mountainous regions of north Georgia. Prices for sourwood rose only slightly, with a pound going for \$5.00 to \$6.00.

Varroa destructor, a parasitic mite that feeds on the adult and developing stages of bees, along with the viruses associated with varroa, continue to be the number one threat to beekeepers across Georgia and the U.S. Populations of varroa far exceeded what is normally observed, thereby causing more colonies to die earlier in the season. There has been no real explanation as to why varroa numbers rose significantly this year, although it may be attributable to warmer weather, which prolonged brood rearing. The increase in mites, along with drought conditions and lower nectar flows, added pressure on the already stressed populations of bees. Beekeepers reported that more treatments were required to reduce varroa population loads, adding to cost per hive. Additionally, higher-than-normal small hive beetle populations were reported across the state.

Due to the decrease in nectar flows and the increase in honey removed, supplemental feeding is being reported in colonies in regions across the state. Plus, with minimal to no goldenrod nectar reported due to drought conditions, fall buildups were lacking. Without supplemental feed, colonies will definitely starve, so feeding is highly encouraged in all parts of the state from now until the nectar flows begin in 2017.

Interest in beekeeping continues to rise across the state and the Southeast, with people from all backgrounds becoming beekeepers. The number of commercial, sideliner and backyard beekeepers has increased again this year. Consequently, the number and size of beekeeping clubs and associations has also grown larger. As mentioned in previous publications, most of this interest is due to all the media attention on colony collapse disorder (CCD) and the importance of honey bees and pollination

for our food source. The increase in the commercial and sideliner realm is due to the high demand for queens, packages and nucleus colonies, which has continued to see a steady increase in sales over the last several years. Indications are that the 2017 season will follow the same trend, as some suppliers are already reporting anticipated shortages based on 2016 pre-orders. However, prices across the board for packages, bees and nucleus colonies are not anticipated to increase much due to the jump in cost over the last few years.

The demand for pollination services looks somewhat promising for the upcoming 2017 season, with prices for colony rental increasing slightly. To satisfy the ever-growing demand for almond pollination, more colonies will be required to move into California during the first part of 2017. However, with the current state of bees across Georgia and the Southeast, fewer colonies will be available due to the decrease in winter survivability.



Timber

By Will Ficklen, Jack Durgin and Bob Izlar

Total demand for grade timber¹ in Georgia increased through the first three quarters of 2016 relative to the same period last year. However, demand for pine pulpwood² has declined in the second and third quarters in comparison to 2015. This follows the broader trend of higher observed demand for pine roundwood products across the South in 2016. Quarterly demand for pine grade in the South reached its highest level in the first quarter of 2016 since the third quarter of 2008.

The overall macroeconomic outlook for next year is positive because of higher expectations for consumer spending, increased domestic demand for goods and services in addition to lower unemployment. The strength of the U.S. economy is expected to be the driving force behind global economic expansion in the near term. Housing starts are a strong driver of Georgia's economy and are especially tied to the production of Southern yellow pine lumber. U.S. housing starts in 2017 are projected to improve slightly over levels recorded this year, which should benefit lumber producers and continue to increase demand for pine roundwood. While housing starts in 2016 will likely fall short of the 1.5 million units needed annually to support population growth and the replacement of older homes, many economists believe that housing starts may approach this benchmark in 2017. The key factors influencing single-family home construction include employment levels, real wage growth and household formation. With the current unemployment rate declining below prerecession levels and increasing competitiveness in the labor market, it is expected that household formation will grow at a higher rate. Issues such as growing levels of student loan debt and strict mortgage underwriting restrictions are believed to have limited household formation. Other important economic indicators that drive demand for timber

in the South, such as real gross domestic product growth and energy prices, have been fair and should see moderate growth in 2017.

Commodity prices

Commodity prices in 2016 rebounded after a disappointing year in 2015, but are expected to level off in 2017. The Random Lengths softwood framing lumber composite price increased 4 percent in the third quarter to \$361 per thousand board feet after hitting a low in the first quarter at \$312.50. Price gains can be attributed to growth in U.S. housing starts in 2016. A strong U.S. dollar and declining overseas demand, primarily from China, has lowered both U.S. and Canadian lumber export shipments. With the expiration of the U.S.-Canadian Softwood Lumber Agreement (SLA) in October, there has been much concern that increased lumber shipments from Canada would greatly outpace current U.S. domestic demand and further impact pricing. Whether or not the expiration of the SLA will further place downward pressure on the composite price remains to be seen.

Pulp prices (Northern bleached softwood kraft pulp) averaged \$998 over the third quarter of 2016, increasing by 3.2 percent from a year ago. Although we have entered the traditionally strong fall season, the pulp market has seen little improvement in North American or international demand. The strength of the U.S. dollar also continues to affect global pulp market dynamics. Our outlook has pulp prices stabilizing at current levels due to lower-than-expected demand and surplus supply through the end of the year. Higher global economic growth in 2017 would increase demand for paper and packaging goods and put upward pressure on market pulp prices.

Southwide average stumpage prices for pine have declined slightly throughout 2016 despite slowly increasing demand from Southern mills. TimberMart-South reported a third quarter 2016 average Southern pine

sawtimber price of \$24.30 per ton, down by 4.6 percent over the same period in 2015. Average pulpwood stumpage price was reported at \$10.17 per ton, up by 3 percent year over year. The current pine sawtimber stumpage price average is still roughly 35 percent lower than mid-2006, highlighting the slow pace of recovery in stumpage prices for forestland owners. Local market conditions for stumpage vary. For up-to-date market prices, please check with local forestry consultants.

Demand outlook

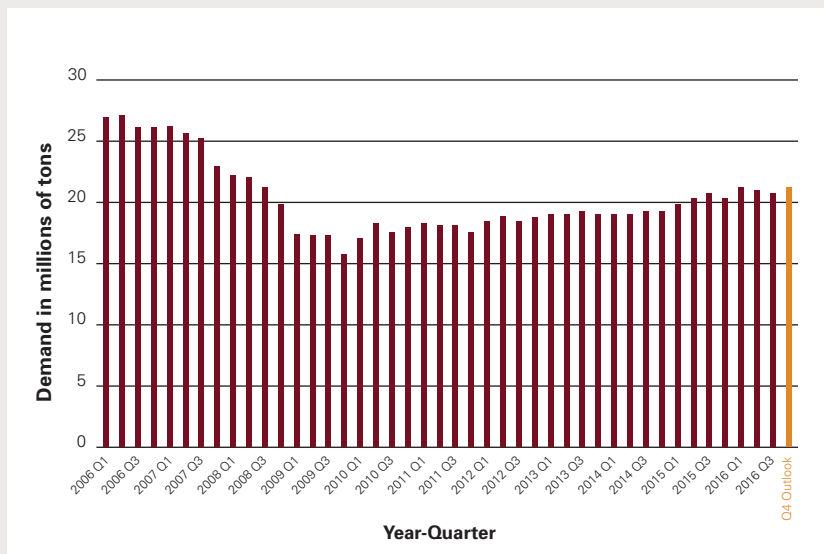
Demand for pine grade timber declined by 0.72 percent throughout the South since the end of the second quarter, and is just 0.8 percent higher than this time last year. In addition to a decline in demand for Southern yellow pine lumber in 2016, poor pricing for finished lumber pushed a number of mills to reduce production hours or take unscheduled downtime. Georgia recorded increased pine grade demand in each quarter of 2016. Projections for increasing housing starts, further declining unemployment and unchanged diesel prices have our grade demand outlook trending upward next quarter and in 2017 (see Figure 1).

Timber inventory on the stump, especially pine grade, that was conserved and growing in the forest since late 2007 will likely dampen any significant price increases as timber demand recovers. However, timber supply may be constrained by logging availability and capacity, extreme weather events and energy price changes. These factors may also raise delivered timber prices, even with abundant timber inventory. Since 2009, major Canadian lumber-producing firms have almost doubled the number of facilities they own in the U.S. South. These long-term investments are being made because of the strong regional growth in housing as well as the quality of the forest resource available.

Hardwood grade demand – including

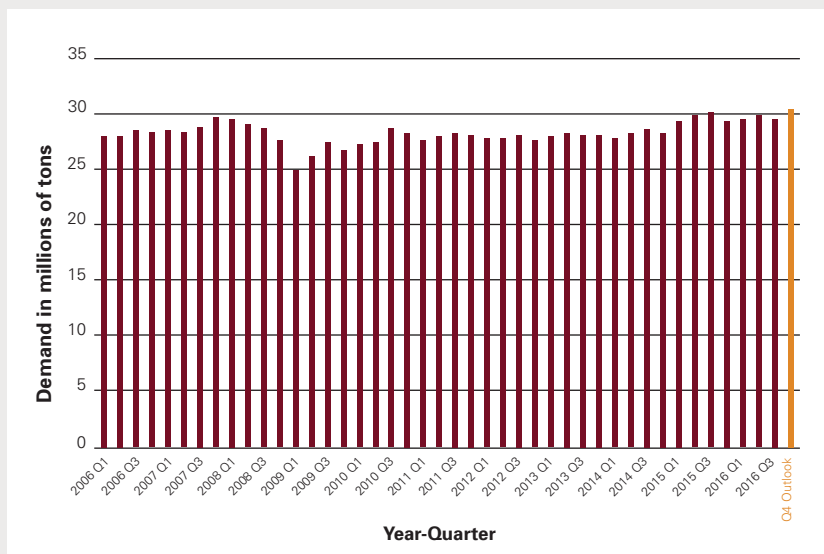
Timber, *continued*

Figure 1. Demand for pine grade timber in the southern U.S., 2006 to 2016.



Data sources: The Harley Langdale Jr. Center for Forest Business: Wood Demand Research Program.

Figure 2. Demand for pine pulpwood and woods-direct chips in the southern U.S., 2006 to 2016.



Data sources: The Harley Langdale Jr. Center for Forest Business: Wood Demand Research Program.

timber used in lumber and pallet production – in the third quarter remained mostly flat, increasing just 0.1 percent, and is slightly higher by 0.93 percent than this time last year. The largest demand increases were reported in Georgia and Virginia, but small declines were seen in Tennessee and Texas. Tough markets for various finished hardwood products and species, along with the strong dollar, remain troublesome for producers.

Pine pulpwood and woods-direct chips – delivered wood chips from in-woods chipping operations – demand decreased 1.1 percent across the South last quarter. Pine pulpwood demand from oriented strand board (OSB) and panel mills across the South decreased by 5.7 percent during the third quarter following the 13.5 percent increase observed last quarter. Pulpwood demand from chip and pulp/paper mills was down slightly this quarter by 0.3 percent. Woods-direct chip volumes were higher by 3.06 percent and pulpwood demand from all other consumers decreased by 3.4 percent. Pulpwood and woods-direct chip demand has been flat to down each of the last three quarters across the South. Demand is 2.3 percent higher than the third quarter of 2015. (See Figure 2.)

For pine pulpwood, consumption across the South continues to be driven higher by steady demand from pulp and paper mills in addition to rising demand from pellet producers. Demand for pulp used in newsprint and writing papers – the largest sector of pulp production – has been under pressure from the increasing popularity and use of e-books and tablets. However, it's expected that this decline will be offset by the increasing production of paperboard and other paper products. Since worldwide population and economic growth are trending upward, demand for pulp consumer products, such as paper towels, napkins and sanitary paper, is expected to be especially strong. Demand for OSB, which is also produced from pulpwood-sized trees, is expected to rise



as U.S. homebuilding activity continues to gain momentum. Existing and planned bioenergy facilities, including pellet mills, in the South may have a noticeable impact on prices and demand for pulpwood timber in wood baskets throughout the region. Global demand for U.S. pellets is expected to increase to roughly 26 million tons by the end of the decade, with a significant majority of the current and announced production capacity in the U.S. South^{3,4}. Bioenergy projects will increase demand for wood-based raw materials and compete with the traditional forest industry at the local level, likely leading to higher timber prices. Some current operations are already starting to affect local market dynamics. Therefore, declining pulpwood demand from newsprint and paper consumption will likely be compensated by an increase in demand from producers of OSB and

bioenergy. Demand projections for 2016 have pine pulpwood and direct chip volumes reaching levels above those observed at the end of 2007 and beginning of 2008. At the local operating level, the aggregate impact will likely lift pulpwood prices.

Overall, the outlook for timber markets in the U.S. and the South in particular is positive, with the potential to be driven higher by European demand for wood pellets and domestic housing construction in general. Forestland owners in the South and Georgia are well positioned to take advantage of increased demand for timber from a strong forest products manufacturing base that has benefited from significant capital investment in the past few years. Demand for primary timber products is expected to increase, and timber prices have a good chance of moderate growth.

References:

Freddie Mac, U.S. Economic Outlook.

Fannie Mae, U.S. Economic Outlook.

Wells Fargo Securities, U.S. Economic Forecast.

Random Lengths Publications, Inc., Softwood Framing Lumber Composite Price Index. TimberMart-South, Third Quarter 2016 Price Report.

UGA Center for Forest Business, Third Quarter 2015 Wood Demand Report: www.ugacfb.com/research/wdrp.

Footnotes

¹Grade timber includes large- and medium-sized logs that are primarily used in lumber production. Some portion of medium-sized logs, known as "chip-n-saw," are chipped and further used in pulp production.

²"Pulpwood" is a common name for small-sized logs that historically have been used primarily in pulp production, but more recently have also been used for oriented strand board (OSB) and bioenergy production, particularly wood pellets.

³"Effect of Policies on Pellet Production and Forests in the U.S. South." U.S. Department of Agriculture, Forest Service. General Technical Report SRS-202. December 2014. ([www.forisk.com/UserFiles/File/WBUS_Free_201209\(1\).pdf](http://www.forisk.com/UserFiles/File/WBUS_Free_201209(1).pdf))

⁴Wood Bioenergy US. Volume 7, Issue 4. Forisk Consulting.

Notes

[illegible]

Authors

- Jennifer A. Berry University of Georgia College of Agricultural and Environmental Sciences
Department of Entomology
Email: jbee@uga.edu; Phone: 706-769-1736.
- Dr. Brady Brewer University of Georgia College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics
Email: bebrewer@uga.edu; Phone: 706-542-2632.
- Dr. Ben Campbell..... University of Georgia College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics
Email: bencamp@uga.edu; Phone: 706-542-0852.
- Dr. Esendugue Greg Fonsah University of Georgia College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics and UGA Cooperative Extension
Email: gfonsah@uga.edu; Phone: 229-386-3512.
- Dr. Jeffrey M. Humphreys University of Georgia Terry College of Business
Simon S. Selig Jr. Center for Economic Growth
Email: jhumphre@uga.edu; Phone: 706-425-2962.
- Robert L. Izlar..... University of Georgia Warnell School of Forestry and Natural Resources
Harley Langdale Jr. Center for Forest Business
Email: bizlar@uga.edu; Phone: 706-542-6819.
- Dr. John C. McKissick University of Georgia College of Agricultural and Environmental Sciences
Center for Agribusiness and Economic Development
Email: jmckiss@uga.edu; Phone: 706-542-9080.
- Dr. Adam N. Rabinowitz University of Georgia College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics
Email: adam.rabinowitz@uga.edu; Phone: 229-386-3512.
- Dr. Levi Russell University of Georgia College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics
Email: lrussell@uga.edu; Phone: 706-542-0755.
- Dr. Tommie Shepherd University of Georgia College of Agricultural and Environmental Sciences
Center for Agribusiness and Economic Development
Email: tlshep@uga.edu; Phone: 706-542-9081.
- Dr. W. Don Shurley University of Georgia College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics and UGA Cooperative Extension
Email: donshur@uga.edu; Phone: 229-386-3512.
- Amanda R. Smith University of Georgia College of Agricultural and Environmental Sciences
Department of Agricultural and Applied Economics and UGA Cooperative Extension
Email: a.smith@uga.edu; Phone: 229-386-3512.
- Dr. Kent L. Wolfe University of Georgia College of Agricultural and Environmental Sciences
Center for Agribusiness and Economic Development
Email: kwolfe@uga.edu; Phone: 706-542-0752.

Letter from the Dean

It is a time of uncertainty in our nation and in agriculture.
What the future holds is yet to be revealed.

Over the past year, we have faced hurricanes, wildfires and a deepening drought across Georgia. Yet, for the fourth year in a row, our state has been named the best state in the nation in which to do business.

We have been through one of the most interesting elections in my lifetime, and once again, the peaceful transfer of power to a new president is in process. In the coming year, we will see how our new administration will begin to implement policies that will impact not only our personal lives, but the agriculture industry as a whole in terms of trade, regulation and the writing of a new farm bill.

Many farmers in Georgia are suffering through low commodity prices, but we continue to produce the safest, most affordable food supply in the world to keep America and many others well fed. We are exporting products in quantities that have given our ports another banner year for shipping.

While things may seem uncertain, some things are clear: This college will continue to work every day to find new technologies and innovations to improve agriculture. We will share those discoveries with growers across the state through our exceptional Cooperative Extension system, and we will educate a new generation of students in our classrooms to lead Georgia's agriculture into the future.

Thank you for coming to the 2017 Georgia Ag Forecast. I hope the information you learn today will help you make the best business and production decisions for the coming year. We appreciate your support and you can continue to count on ours.

Sincerely,



Sam L. Pardue
Dean and Director
University of Georgia College of Agricultural and Environmental Sciences



***Every Time You are Fed,
Thank Someone Who Wears Georgia Red***



***This guide is provided
as a companion to the
2017 Georgia Ag Forecast
seminar series.***

For more information, visit
georgiaagforecast.com

or contact

**The Center for Agribusiness and
Economic Development**

203 Lumpkin House
University of Georgia
Athens, GA 30602-7509
706-542-2434

**The College of Agricultural
and Environmental Sciences
Department of Agricultural
and Applied Economics**

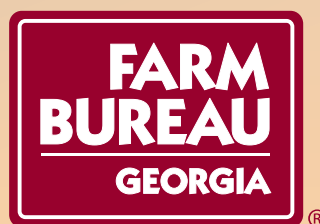
301 Conner Hall
University of Georgia
Athens, GA 30602-7509
706-542-2481

Georgia Ag Forecast is hosted and organized by



**College of Agricultural &
Environmental Sciences**
UNIVERSITY OF GEORGIA

Series Sponsors:



In cooperation with the Georgia Agribusiness Council



@UGA_CollegeofAg #AgForecast



facebook.com/UGACAES